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ATURAL MINERAL WATERS:

THEIR

PROPERTIES AND USES.

Eighth Edition. Revised and Enlarged.

LONDON:
GRAM & ROYLE, 52, FARRINGDON STREET, E.C.
1886.

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OF ENGLAND
OCT 12

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PREFACE.

ERAL years have elapsed since the publication of the 7th edition of this pamphlet, and the demand for Natural Mineral Waters during that interval, grown enormously, it has become necessary e a revised and improved edition, brought up to the level of g knowledge on this subject. A notable feature in this new will be found in the particulars of many excellent natural l waters, formerly but little known or used, but recently come gue, on account of their special properties and uses.

prominent characteristic of hydro-therapeutics has been, of recent he rapid extension of the use of Natural Mineral Waters by the in this country. The gradual adoption of this mode of treat- home, in the initial and even advanced stage of various diseases f them somewhat obscure), and in substitution for the journey for pose of treatment *in situ*, has had and is still having the effect of ting the medical practice of the United Kingdom more closely of continental physicians. By the latter these remedial agents ng been held in the highest estimation, and their use largely ed, whence it results that the consumption of Natural Mineral in all parts of the Continent of Europe, is many times greater in on than it is in this country.

bject in compiling and issuing this improved edition of our t is mainly to promote a more extended knowledge of these natural remedies and their consequent use, by supplying, in an ry form, useful information as to the chemical composition and l healing virtues of all the leading Natural Mineral Waters; nted by an Appendix, containing, in tabular form, brief notices and many other waters, less known, for which a small but demand has arisen in this country. We trust that this *sumé* will lead all those who are interested in this special consult and study the comprehensive works of the many pecialists who have treated thereof, viz., Drs. Sutro, Weber, Macpherson, Lee, Braun, Durand-Fardel, Prosser-James, and urces to which we have to acknowledge our obligation for much rmation herein contained.

INGRAM & ROYLE,
52, Farringdon Street, E.C.

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NATURAL MINERAL WATERS.

subject which I have to bring before you may justly claim to be a portant part of Materia Medica ; for it treats of remedies, prepared mb of the earth, by the power of nature alone, which are, in many disease, indispensable to effect a cure."—DR. SUTRO.

ve all things it appears to me necessary to show that the treatment e and of morbid constitutional tendencies, by the aid of Natural Waters, is only a branch of general medicine ; that it rests on the nciples ; and that it ought to go hand in hand with other measures of actice."—DR. HERMANN WEBER.

ural Mineral Waters have a special claim upon the attention of the Profession, not only on account of their remarkable physiological and ical properties, but also because they are the only medicines offered ature in a state fit for immediate use."—DR. ALTHAUS.

al Mineral Waters, as remedial agents, have always been found to, and much more efficacious than, the most ingenious imita- rtificial preparations, formed by synthesis and based on chemical This is, doubtless, attributable to the fact that they contain which escape ordinary analytical methods of examination. ple, the perfection attained of late years by the application of rn system of Spectrum-Analysis, has led to the discovery of nce of certain metals, *e.g.*, copper, strontium, lithium, and n springs where their presence was previously unsuspected. emely probable, if not beyond all doubt, that many subtle and mineral constituents of some natural mineral waters still ection by the most minute analysis, even under the scrutiny of emists. This is sufficient explanation of the fact that Natural Waters very frequently effect a cure in cases of complaints e proved utterly intractable to treatment by artificially com- emedies, from which even little or no alleviation has been . And it is for this reason that physicians and specialists, both ntry and on the Continent, have, until a comparatively recent

period, been in the habit of prescribing their use *in loco*, at the p
itself where the waters spring.

But by the modern system of supplying the natural mineral wa
in bottles, filled and hermetically sealed at the springs themselves, v
due care and surveillance, all or nearly all these natural waters may
exported, so that their beneficial use, in a course of home treatment
rendered possible, without any loss of their primary restorative
remedial qualities.

But to this end, it is absolutely essential that the waters should
bottled on the spot, in their natural condition, as they issue from
spring, without any artificial treatment or manipulation of any
whatever. Everything in the shape of the addition of arbit
proportions of artificially prepared salts, or of overcharging
carbonic acid gas chemically generated, is therefore to be deprecated
prohibited. It is indisputable, however, that such practices are far
uncommon. They have a tendency to vitiate the valuable properti
the natural water, and to defeat the objects of its use; and the re
has no doubt been to cause failure of the anticipated benefits, an
lower the reputation of the water as a remedial agent.

Upon this point reference may be made to the deliberately expre
opinions of some of the highest authorities on hydro-therapeu
Tichborne and Prosser-James, in their well known work on "
Mineral Waters of Europe," writing on the therapeutics of table-wa
say :—

> "It is an error to suppose that the value of a water is in proportion to the am
> of gas it contains. A large quantity is expelled from the stomach almost as so
> swallowed, or else is liable to cause distress. Hence waters containing a mod
> amount are found more digestible."

On the danger of artificial waters the same authorities remark, *ibi*

> "When we consider mineral waters from a medical aspect we cannot too str
> condemn an attempt to imitate the natural springs."

Sir Henry Thompson, F.R.C.S., etc., in a clinical lecture on "
Early History of Calculous Disease, and the Treatment best Adapt
its Prevention," delivered at University College Hospital, made
following remarks on the radical difference between natural and arti
mineral waters :—

> "At the same time let me caution you against regarding the small doses of
> waters as having any affinity, either in the matter of quantity, or by man
> administration, with what is understood as homœopathic doses. Thus, for ex
> you know that you may give A an ounce of salts, or B half an ounce and you purge
> but you may obtain the same effect with one-fifth of those quantities, if you gi
> prepared in Nature's laboratory in the form of mineral water. It is a curiou
> which I give as an ultimate one, and without speculating here on the caus
> difference . . . . You will, therefore, readily understand how essent

object to employ the natural mineral waters ; since what are called artificial
,' however admirably prepared, are simply pharmaceutical products, and are
ite of the very quality which distinguishes the remedy they are designed to
e . . . . So that there is something, which I do not pretend to
, and certainly shall not speculate about here, which distinguishes the action of
l Mineral Waters from the action of salts which are produced pharma-
lly."

rther Medical testimony against the use of Artificial Mineral
r is given in the following extracts :—

cannot blame in too strong terms the use of Artificial Mineral Waters.
ever replace those of the natural springs. To give the name of Vichy waters
ere solution of bi-carbonate of soda is as absurd as to give the name of wine to
re of cream of tartar, alcohol, and mineral salts, which this liquid is proved
when analysed. Go to the natural springs ; nature is far better than the
ory."—*Dr. Bousdon.*

ificial Mineral Waters of the best fabrication are, in a medical and chemical point
, only a poor counterfeit of the real waters whose name they usurp. They
bly pernicious, as they do not attain the physician's aim, and cast a certain
t on the genuine production."—*Dr. Constantin James.*

ving heard so much of Mineral Waters, you will ask perhaps—does not the
dicate that certain mineral substances are dissolved in the springs ? And if so,
uld we not, with the knowledge of their composition, combine the same
ces in the same proportions, and expect similar results ? I answer, if only
remedies were contained in them, you might certainly easily imitate them, but
h these waters appear perfectly clear and transparent, every one of them
substances insoluble in common or distilled water."—*Dr Sigismund Sutro.*

en Bacon expressed surprise that 'no man hath sought to make an imitation
f natural baths and medicinal fountains,' he was not aware that such imita-
d already been made. Herodotus, indeed, a successor of Galen, had
that the copies were not equal to the originals. We have already seen that,
ds baths, everything had been done that Bacon could have wished ; and it is
e with medicinal fountains, of which imitations have now for a long time past
pared. These are truly called imitations, for they are seldom exact enough
even as accurate copies. And this is not surprising, while the exact chemical
tion of mineral waters is by no means positively determined. Whether the
of minute quantities of a great many salts is of any real importance ; whether
polypharmacy is more valuable than man's, or not, it is very difficult to add
ctional quantities accurately to artificial waters ; and the organic matters,
aregine, present in some, cannot be imitated at all. As these artificial waters
mperfect copies, perhaps it would be better if the actual contents of the
ere specified on the outside, instead of the name of the spring they imitate."—
pherson.

ast quotation will be from the writings of Dr. Durand-Fardel,
, one of the most eminent hydrologists, if not the most eminent, of
:—

e is all the difference in the effect of carbonic acid gas upon the stomach, accord-
manates from a liquid, artificially rendered gaseous, or from a naturally gaseous
have known too many cases in which the stomach has been injured by the
and too prolonged imbibition of artificial gaseous waters to doubt that every
cialist has had the same experience......It may be accepted, as a general rule,
ess effervescent a bicarbonated water is, the more beneficial is its use, and
r can its use be continued with impunity. The reason is that the gas which
contains is retained therein, and only escapes gradually, instead of being
d and disappearing at once, as it does from artificially aerated waters. But
pposite principle has met with general acceptance. The more effervescing
, the more loudly is its merit proclaimed. It is precisely this error which
ht into vogue some artificial waters, which have passed as natural mineral
the serious detriment of the stomachs of those who use them freely, as in

atin, in a communication to the Paris Academy of Medicine (31st January,
egorically declared that the introduction of the gas by artificial pressure only

served to endow artificial waters with all the disadvantages, and none of the goo qualities, of those which they pretend to replace. In short, the difference betwee artificial and natural aerated waters may be defined by one word—the former are bu the vehicles, the latter truly *generators* of the carbonic acid gas.

"In my opinion the Vals Vivaraises waters, Nos. 1 and No. 3, may be regarded typical digestive and table waters, combining all the qualities essential to secur favourable conditions and beneficial results."

Similar testimony is rendered by Dr. Barthez, Physician to th Military Hospital at Vichy, and author of several valuable treatises o the uses of Natural Mineral Waters.

The foregoing extracts demonstrate the absolute necessity of avoidin the use of artificial mineral waters, and of obtaining and using onl natural mineral waters, pure as they issue from the spring, and entirel free from artificial chemical treatment and manipulation of any kin whatsoever, if the beneficial action sought is to be attained. It is fo that reason, and to secure the attainment of all the advantages tha accrue from the use of any mineral water in its pure and unadulterate natural state, that our firm make it their chief object, by specia arrangements, to obtain and supply the principal Natural Mineral Water directly from the Springs, being there bottled and hermetically seal under strict supervision, just as they issue from the parent source. Th method can alone guarantee the perfect preservation of all the subtle an active properties imparted to such waters by Nature. We may ad that we shall be glad to receive samples of any new variety of Natura Mineral Waters, for introduction to the faculty and the public, o account of general excellence or special properties.

The various natural Mineral Waters may be classified as follows ; an full details, regarding each, will be found in the subsequent series o notices, arranged in alphabetical order.

BITTER WATERS.

Æsculap, Birmensdorf, Friedrichshall, Hunyadi-János, Hunyadi-Lászlò, Leamington Spa, Ofen (Rakoczy), Püllna, Royal Hungarian Rubinat, Saidschütz, Seidlitz, Victoria-Ofener, &c.

These waters owe their medicinal activity chiefly to the salin ingredients, which are either the sulphate of soda or the sulphate o magnesia ; but the chlorides which are usually present in them contribut much to their medicinal efficacy. Those Springs in which the sulphate of magnesia predominates are called "bitter." In full doses, the waters are mild cathartics—in small repeated doses, they act as refr gerants and alteratives ; and they are valuable in all hepatic dropsi complaints, hæmorrhoids, &c.

ALKALINE WATERS.

Bethesda, Bussang, Condillac, Contrexéville, Evian, Giesshübler, Marienbad, Pougues, Royat, St. Galmier, St. Galmier-Noël, Sarato oatt, Tarasp, &c. There are subordinate distinctions to be drawn, in these, according to chemical composition. Other principal ine Springs are classified as follows:—

aline Acidulated Springs: —Apollinaris, Bilin, Fachingen, Geilnau, ahr, Vals, Vals-Vivaraises, and Vichy (all the springs in various s), &c.

aline Muriated Acidulated Springs:—Ems, Luhatschowitz, Roisdorf, unn, and Selters (Ober), &c.

aline Chalybeate Acidulated Springs:—Franzensbad, Schwalheim,

Alkaline Waters are the most considerable class of Natural al Waters, both in point of numbers, and in their extensive uses, t forms of diseases affecting the digestive organs, and to combat the ects arising from abnormal and excessive acid secretions. They ecially prescribed for gout, rheumatism, calculus, catarrh of the h, affections of the kidneys, etc., as well as for pulmonary ns and many other forms of disease, as mentioned in the ive notices of the various springs.

FERRUGINOUS OR CHALYBEATE WATERS.

urg, Griesbach, Orezza, Pyrmont, St. Moritz, Schwalbach, ichy-Lardy, Vichy-Mesdames, etc. These waters are of two viz., carbonated and sulphated. The carbonated ferruginous waters the sub-carbonate of protoxide of iron; the sulphated, sulphate xide of iron. They are stimulant, tonic, and astringent. The ed carbonated chalybeates are most easily digestible by the , by reason of the excess of carbonic acid which they contain. The his class of natural mineral waters has, from remote periods, been ery efficacious in those states of debility denominated anemia, or operly hyphemia. In these constitutional states the blood is e, both in quality and quantity; the skin appears pale and xsanguineous; and the cellular tissue is œdematous. Patients ondition of the system are affected with great weakness, entire appetite, and palpitations; and in females, menstruation is ly defective and abnormal. Under the influence of these waters, tite is stimulated, digestion is facilitated and promoted, the ssumes its natural tint, the cheeks become florid, the temperahe body is clevated, the uterine discharge is enhanced, and the comes fuller and stronger. The value of this class of Natural Water, as a perfectly safe, reliable, and natural remedial agent, cely be over-estimated.

SULPHUROUS WATERS.

-Chapelle, Barèges, Bonnes, Cauterets, Challes, Enghien, e, Miers, Weilbach, etc. These waters are impregnated with ted hydrogen; and are especially useful in the treatment of s diseases, syphilitic eruptions, and all chronic cutaneous . Perhaps the most remarkable water of this kind, ated by special constituents, is the St. Boës, a sulphoc, arseniated and ioduretted water, of unique chemical on.

SALINE OR BRINE WATERS.

Adelheidsquelle, Carlsbad, Homburg, Kreuznach, Marienbad, Woodhall, etc. These waters contain a large quantity of chloride of sodium. Taken in considerable doses, they are emetic and purgative, and they are celebrated for their efficacy in scrofulous complaints, glandular enlargements, etc.

SPECIAL WATERS.

Certain chemical constituents, of comparatively rare occurrence (so far as their presence can be detected by ordinary analytical methods) render particular waters especially noteworthy, although, by reason of their general composition and properties they may properly belong to one or other of the foregoing classes of Natural Mineral Waters. Such elements are lithia, arsenic, iodine, bromine, etc. And we may cite as examples—besides the St. Boës waters already noticed—such remarkable waters as those of La Bourboule (alkaline arseniated); the Royat St. Mart, St. Victor and Cæsar springs, which contain arseniate of soda, chloride of lithium, sodic iodide and bromide, etc,; Buffalo Lithia, containing the bicarbonates of lithia and baryta, with traces of iodine; Vals-Vivaraises (No. 3), containing lithia, arseniate of soda, and alkaline iodides; Vichy-Larbaud, with perceptible traces of lithia, iodine and bromine, and arseniates.

TABLE WATERS.

These waters have been called "indifferent"—which as Tichborne and Prosser-James remark should rather be "indeterminate"—waters. They are mostly alkaline and gaseous, but in general much less highly mineralised than what may be called the natural mineral waters proper. They are taken *ad lib.*, at mealtimes and between meals, either alone or mixed with wine or spirits. The introduction of these waters for table-use, as a constant beverage, pure or mixed, has been extremely successful, and met with a remarkable expansion and development in this country, following, though afar off, the continental practice. We give brief notices of the principal waters of this class, because their regular use, far from being neutral in the therapeutic point of view, will be found to exercise a most beneficial action, by stimulating and maintaining in perfect order the assimilative and secretory functions. They are especially valuable for persons of weak and imperfect digestion; they cleanse the system, by the urinary organs, and thus tend to ward off and prevent the ailments against which, when developed, the more highly mineralised waters afford a more active remedial agent.

The following remarks, by Dr. Macpherson, give a brief epitome of the general application and use of the natural mineral waters, of various kinds:—

"Thus the digestive and urinary organs are specially affected by Alkaline Waters; the liver and alimentary canal by Saline Waters. The skin and (according to continental authorities) the mucous respiratory membrane are much influenced by Sulphur Waters; while a special action on the blood has always been attributed to Ferruginous Springs.

TEMPERATURE.

The action of many mineral waters is aided by the addition of a little rm milk or water, the former being used to mix with the alkaline and latter with the saline waters. As regards the temperature of natural neral waters as they flow from their respective sources, there is a great erence. As, for example, the waters of St. Moritz, Tarasp, Luhat-owitz, Salzbrunn, Bruckenau, Schwalbach, Homburg, Geilnau, and chingen graduate from 42° to 50° (Fahrenheit); Driburg and Kissingen ; Spa and Franzensbad 52°, Marienbad 53°, and Bilin 53°4; mont and Kreuznach 54°5; Saidschütz 60°, Selters 62°, Vichy-estins 67°, Lippspringe 70°, Soden 75°, Teplitz 80°, Ems 85°, langenbad 87°, Bonnes 91°5, Wildbad 96°3, while Vichy-Grande-lle, Wiesbaden, Gastein, Barèges, Carlsbad, Aix-la-Chapelle, Cauterets, gnères de Bigorre, Bagnères de Luchon, Plombières, and Borcette, all Hot Springs.

DOSES.

Although we have indicated—as approximately as can be ascertained n medical works on the subject—the quantities usually taken of the ective waters, we would remark that it is always advisable for the ent to consult his medical attendant on this point, as his condition be such as to render caution necessary, and excessive doses, or a prolonged course, might prove not only imprudent but positively udicial. In fact, at the various Spas, and Thermal Establishments, nature and extent of the treatment is generally regulated by properly lified specialists, who are almost invariably consulted by invalids re a course of the waters is commenced. Much inconvenience and ring have frequently been experienced by patients who have been l-advised and imprudent as to dispense with medical advice and rvision.

e may conclude by remarking that the Natural Mineral Waters, red to in this pamphlet, may be summarised under three heads, y, the "indeterminate" or "indifferent waters" for table use, as a rage—offering the great and inestimable advantage of a pure ble water, free from taint and impurity, wholesome and slightly cinal, in a beneficial and preservative way. Of these the German ers, Selters, Johannis-brunnen, and Sauerbrunnen, and the French ers, St. Galmier, and Eau de César, may be regarded as the best s. Secondly, what may be called the medicinal natural mineral rs, of which the various Vichy Springs may be regarded as most ughly typical, of the alkaline class; Æsculap, Hunyadi-Lászlo, and ria-Ofener, of the bitter aperient class; Vichy-Mesdames, Spa Orezza, of the ferruginous or chalybeate class; Challes and ogate, of the sulphurous class; and Carlsbad and Kreuznach, of the or brine class. Thirdly, Special Waters, such as St. Boës, La boule, Royat, Buffalo Lithia, Vals Vivaraises, and Vichy-Larbaud—ly mentioned.

e cannot do better, in reference to the typical distinctions above ted, than submit the subjoined extracts from the already quoted work of Tichborne and Prosser James, on "The Mineral Waters of Europe," bearing upon Table and Alkaline Waters.

Seltzer.—"The most important of table waters."—"Advertisements may have done a great deal, quality has done something, but *no water* has been able to displace Seltzer water, as regards its hold on the public mind, and its position as a natural table water. It is the one which has been the type of artificial table waters."—"In table waters the presence of rather large quantities of chloride of sodium is no detriment, provided the sulphates of magnesia and soda are low. *The Seltzer spring contains nearly* 200 *grains of chloride of sodium, but very little sulphate of sodium, and no sulphate of magnesium.*"—"It is, perhaps, not too much to say that the most celebrated waters, perhaps in the world, are those obtained at the small post-town called Selters."—"Seltzer claims the first place as the general favourite."—"It is both antacid and saline."—"All who require a gaseous, feebly alkaline and saline water, with a tendency to relax rather than constipate, may try Seltzer."—"Its saline constituents give it a refreshing quality which assists in allaying thirst."—"It promotes the secretions of the skin and kidneys."

Vichy—"We wish to make a few remarks upon the bottling of these waters. We do not wish to insinuate that other waters are not bottled equally well, but the Vichy springs being under Government supervision, we have an insight into the matter which is not afforded by the general run of information given in other cases. The question of bottling is one of great importance in connection with the importation of mineral waters, and when we observe that very few will stand any considerable time without giving *sediment,* we see the desirability of dwelling a little time upon this subject. . . . . As regards the Vichy waters, the corking is done by machinery, and good corks are specially selected. There is an excellent system pursued in connection with them which should be carried out with all the others. Each bottle is secured with a tin capsule bearing the date of the year when it was bottled. Now, having regard to the change that might take place in mineral waters, after keeping for some years, we cannot commend this practice too highly."

"Vichy is the sovereign of alkaline spas."—"Vichy retains its pre-eminence as the strongest alkaline spa. The number and varying qualities of its springs enable those skilled in their use to rely entirely upon them, when mineral waters of a powerful alkaline nature are required."

Natural Mineral Waters: their Properties and Uses.

ÆSCULAP.

HUNGARIAN NATURAL MINERAL WATER.

Analysis calculated in Grains per Gallon.

Sulphate Magnesium	1750·3
,, Sodium.........................	1340·7
Ammonia (free)	0·3
Sulphate Potassium	3·5
,, Calcium	185·6
Chloride of Sodium.....................	301·3
Bicarbonates	140·3
Carbonate Calcium	1·9
,, Magnesia	12·0
,, Iron	3·5
Alumina	5·6
Nitrates (minute trace)	—
Silica	1·6
Bromide Magnesium	—
Chloride ,, ...	—
Carbonate Strontium	—
Total......	3746·6

e skeleton analysis gives, in each half-pint or 10 ounces, solids 235; viz.:— tives 195; Antacids 15; Salines 20. The above analysis was made by Pro. Tichborne, F.C.S., L.L.D., President of the Pharmaceutical Society of Ireland, ppeared in "The Mineral Waters of Europe," 1883, where Æsculap is placed at ead of Class I. of strong Purgatives.

Purgatives consist of double salts of the Sulphates of Soda and Magnesia, in nation with Chloride of Sodium and an unusually large proportion of Bicarbonate la (Antacid) which materially influence its action as adjuvants and corrigents. rity consists in its entire freedom from organic matter in any form, due to the position of the springs in the centre of the water-shed, which secures their ete isolation. Its palatability is self evident, and is fully admitted by the l Profession and the General Public.

Æsculap Estate and Springs are the freehold of an English Company, and d at Buda Pest, Hungary, where the Water is bottled, under the personal ision of an English Chemist, thus ensuring uniform strength, as well as lous cleanliness and care in every detail.

Sidney Ringer in his "Handbook of Therapeutics," 1883, says:—"An excellent administer some of these salts (Sulphate of Soda and Magnesia) is in the form . . . . . . Best of all, Æsculap Water, in doses varying from a wine-glassful a tumblerful or more."

Lancet, (September 26th 1886) says:—"This water (Æsculap) contains the es of magnesium and sodium in unusually large quantities, and only a small y of calcium salts and chlorine. It is an admirable aperient water—one of the owerful, indeed, that we have examined, and may be used with perfect ice. Judging from published analyses the Hungarian waters are the most perients of any in use. Many of the most celebrated German saline waters are useless in this respect."

ÆSCULAP preserves the health by promoting all the vital functions, and is positive specific for :—Constipation, alike in persons of full habit, and in those of feebl health : Congestion or inflammation of the organs, where by promoting intestina secretions and securing the rapid removal of waste products, the circulation i equalised by the better diffusion of the blood : Impaired functional activity, howeve caused, and whether exhibited in disordered stomach, inducing heartburn, headache indigestion, flatulency, loss of energy, and want of appetite, &c. ; or in sluggish liver leading to biliousness, jaundice, gall-stones, &c. ; or in affections of the kidneys resulting in blood impurity, rheumatism, sciatica, neuralgia, and other morbid stat of the nervous system : Formation of uric acid in the blood, manifesting itself eithe in gout, urinary deposit, gravel, or stone in the bladder : and corpulency, which i removes without lowering the system. Its use cools the blood, and clears th complexion. Its action is quiet and certain, with no griping abdominal pains. It doe not induce subsequent constipation. When taken for a few weeks it acts as an intestinal tonic, enabling the patient to forego aperients altogether.

DOSE.—From a wine-glassful to half a tumblerful with an equal quantity of water (preferably hot).

An aperient lemonade is made by adding to half a tumbler of Æsculap the juic of half a lemon and a couple of nobs of sugar ; fill up the tumbler with boiling water.

(Rhenish Prussia.) AIX-LA-CHAPELLE. (Altitude 450 ft.)

Aix-la-Chapelle, or Aachen, fifteen leagues from Cologne, has long been considered the chief sulphur bath of Germany. It is much frequented, especially during the season, which lasts from June to the end of September.

The climate is mild, the mean temperature during the summer months being about 63° F. The water is used for bathing as well as drinking, and is especially useful in rheumatism, cutaneous eruptions, stiff joints, syphilis, and a complaints which are generally benefited by Sulphurous Waters.

DOSE.—One pint bottle to a quart bottle daily.

Analysis according to Baron Liebig in grains per gallon.

		Kaiserquelle.	
1. SOLIDS.	Chloride of Sodium	202·71	grains.
	Bromide of ,,	0·28	,,
	Iodide of ,,	0·04	,,
	Sulphuret of ,,	0·73	,,
	Carbonate of Soda	49·96	,,
	Sulphate of ,,	21·71	,,
	,, of Potash	11·86	,,
	Carbonate of Lime	12·17	,,
	,, of Magnesia	3·95	,,
	,, of Strontia	0·02	,,
	,, of Lithia	0·02	,,
	,, of Protoxide of Iron	0·73	,,
	Silica	5·08	,,
	Organic Matter	5·77	,,
		315·03 grains.	
2. GASES.	Nitrogen	9·00	per cent.
	Carbonic Acid Gas	89·40	,,
	Carburetted Hydrogen	0·37	,,
	Oxygen	1·23	,,
		100·00 per cent.	

le, France.) ALET. (Altitude 650 ft.)

Alkaline Bicarbonated Water.

analysis of the mineral waters of Alet, made a long time ago by O. Henry, has recently been the subject of very interesting investigations by M. Commaille, were continued a few years ago by M. Filhol. The following are the results ed by the last-named eminent and skilled chemist, from his examination of the rincipal waters of these springs, namely the *Source des Bains*, and the *Source lle*, or *Source du Rocher.* He found their mean temperature to be almost al, namely, 29°5 C. (85° F.) for the former, and 29° C. for the latter spring.

Constituents in grains per gallon.

	Source des Bains. grains.	Source Nouvelle. grains.
Bicarbonate of Lime	18·914	15·442
„ of Magnesia	7·567	7·364
„ of Ammonia	0·427	0·378
„ of Protoxide of Iron	0.350	0·560
„ of „ Manganese	0·091	0·077
„ of Lithia	Trace	Trace
Chloride of Sodium	2·961	2·373
Iodides	Trace	Trace
Sulphate of Lime	2·044	1·785
Nitrate of Potash	0·154	0·133
Silicate of „	0·504	0·490
„ of Lime	1·785	1·141
Phosphate of Lime	1·463	1·295
Arsenic	0·007	0·007
Copper	—	Trace
Organic Substances	Trace	Trace
Total Solid Constituents	36·267	31·045
Carbonic Acid (free)	4·123	4·452

odio-bicarbonated water of Alet is bottled and exported without undergoing erioration; it preserves all its curative properties for many years. It may be a table-water, and drunk at meals, either alone or mixed with wine, which it ay alters. Exceedingly light, limpid, and of a most agreeable flavour, it vith everybody, even the most susceptible, and is easily digested by the most stomachs.

il uses.—The effects of the Alet water are especially remarkable in the under-ed cases:—In all stages of convalescence after serious illness, particularly d miscarriage; in nausea, attended with vomiting, and in gastric diseases and il affections, its use, more or less prolonged, will effect a cure even in the most c cases.

vater is especially recommended by ALL THE LEADING PHYSICIAN ACCOUCHEURS S DURING ALL STAGES OF PREGNANCY.

France,) ALLEVARD. (Altitude 1473 ft.)

Effervescing Sulphurous Water.—Temperature 16° C. (61° Fahr.)

llowing analysis of the Allevard waters is by M. Dupasquieu:—

Gaseous Constituents per gallon.

Sulphuretted Hydrogen (free)	1732·5	grains.
Carbonic Acid Gas (free)	6790·0	„
Nitrogen	2870·0	„
	11392·5	grains.

Solid Constituents per gallon.

Carbonate of Lime	21·35	grains.
,, of Magnesia	0·70	,,
Chloride of Sodium	35·21	,,
,, of Magnesium	4·27	,,
Sulphate of Lime	20·86	,,
,, of Magnesia	36·61	,,
,, of Soda	36·75	,,
Silicic Acid	0·35	,,
Iodine	0·42	,,
	156·52	grains.

The high temperature of the gaseous iodo-sulphuretted water of Allevard render extremely suitable for exportation. It may be efficaciously used at home, for t treatment of the various diseases for which it is advantageously used at the wate place itself.

The Thermal Establishment at Allevard is well adapted for the various applicati methods, and appliances peculiar to all the chief sulphurous watering-places. It provided with seven cold and two hot rooms for the gaseous inhalation of s phuretted hydrogen; as also with two rooms recently fitted up for mineral-wa pulverisation, and two others for nasal and pharyngeal injections; ordinary a vapour baths; thermal, Scotch, and local douches, and hydro-therapeutic applia for both sexes. There are also *Buvettes*, or saloons, for drinking the waters, at Springs and in the Park; with special saloons which have recently been refitted the use of the water as a gargle. Every provision has been made for the comfort a convenience of the visitors.

These gaseous sulphurous waters have, during the last few years, acquired a gr reputation, on account of the numerous cures and wonderful effects which have b obtained from their use; and especially in the treatment of Chronic Chest-affecti Asthma, and all diseases of the Respiratory organs; such as Laryngitis, Bronchi Throat Affections, Loss of Speech, Chronic and Granulous Angina, Pharyngitis, They give also excellent results in all the various Skin Diseases, Diseases of Womb, Scrofulous Affections, Wounds from Firearms, Osseous Diseases, Lymph Weakness of Children, and Rheumatic Affections. Their gaseous inhalation has given excellent results, and wrought numerous cures, in the treatment of Tubercu

Allevard is situated at the distance of a two hours' journey from Grenoble; hours from Lyon or Geneva; twelve hours from Marseille; sixteen hours from Par and ten hours from Turin.

The nearest station is Goncelin, and there is a service of omnibuses to meet all the trai

For all particulars and information, application should be made to the Superint dent (*Régisseur*) of the Thermal Establishment, Allevard.

(Rhenish Prussia.) APOLLINARIS. (Altitude 225 ft.

A spring in the Valley of the Ahr, near Neuenahr, in Germany.

DOSE.—Being a table water it may be taken *ad lib.*

Analysis according to Bischoff, in grains per gallon.

1. SOLIDS.	Carbonate of Soda	87·99	Grains.
	Chloride of Sodium	32·62	,,
	Sulphate of Soda	21·00	,,
	Phosphate of Soda	Traces	
	Salts of Potash	Traces	
	Carbonate of Magnesia	30·94	,,
	Carbonate of Lime	4·13	,,
	Oxide of Iron, with Alumina	1·40	,,
	Silicic Acid	0·56	,,
		178·64	grains.
2. GASES.	Free and semi-combined Carbonic Acid	194·32	
	Combined Carbonic Acid	56·49	
		250·81	

tes Pyrénées, France.) BARÈGES. (Altitude 4000 ft.)

water is very useful in cases of obstinate chronic rheumatism, also for diseases skin, syphilis, scrofula, wounds from fire-arms, diseased bone, ulcers, and paralysis.

E.—Two to four half-pint tumblersful daily. It is not advisable to take this except under medical supervision.

lysis, according to M. Longchamp, in grains per gallon, of "Le Tambour" Spring.

SOLIDS.	Sulphuret of Sodium	3·60	Grains.
	Sulphate of Soda	3·84	,,
	Chloride of Sodium	3·07	,,
	Silica	5·19	,,
	Lime	0·22	,,
	Magnesia	0·26	,,
	Soda	0·39	,,
		16·57	Grains.
GASES.	Nitrogen	0·04	Cub. Inches.

consin, U.S.A.) BETHESDA.

vater is reported to have been successfully used in the treatment of diseases kidneys, the medical properties of the spring having been accidentally d by a sufferer from saccharine diabetes, who from drinking the water under- is stated) a perfect cure. It is now prescribed for other forms of kidney and it is said to be very efficacious in Bright's disease, inflammation of the and kidneys, dropsy, gravel, &c.

.—From eight to ten tumblers daily.

Analysis according to Professor C. F. Chandler.

In grains per gallon, there are:—

OLIDS.	Chloride of Sodium	1·3920	Grains.
	Sulphate of Potassa	0·5460	,,
	,, Soda	0·5424	,,
	Bicarbonate of Lime	20·4264	,,
	,, Magnesia	14·8656	,,
	,, Protoxide of Iron	0·0504	,,
	,, Soda	1·5072	,,
	Phosphate of Soda		
	Alumina	0·1464	,,
	Silica	0·8892	,,
	Organic Matter	2·3796	,,
	Total	42·7452	Grains.

rland.) BIRMENSDORF. (Altitude 1300 ft.)

water, very mild in its action, the mineral constituents being small as with those of most of the well known waters of this class. It is useful mplaints, jaundice, hepatic calculus, hypochondriasis, hæmorrhoids, and as ative.

DOSE.—From half to three-quarters of a tumblerful taken half an hour before breakfast.

Analysis according to Bolley in grains per gallon.

Sulphate of Potash	7·294	Grains.
„ Soda	492·492	„
„ Lime	88·844	„
„ Magnesia	1540·945	„
Chloride of Magnesium	32·228	„
Carbonate of Lime	0·931	„
„ Magnesia	2·268	„
Magnesia (Crenic)	7·070	„
Peroxide of Iron	70·749	„
Alumina	1·939	„
Silica	2·114	„
	2246·874	Grains.

(Rhenish Prussia.) BIRRESBORN. (Altitude 1100 ft.

Alkaline Chalybeate Sparkling Water.

The Birresborn Water is of a high degree of organic purity; almost tastele highly charged with carbonic acid gas, and possessing all the special characteristics a really good table water. It is a cooling and refreshing drink, quenching the thir and mixing well with wines or spirits. As such, it may be taken *ad lib.*

Its chemical composition is as follows, in grains per gallon:

Bicarbonate of Soda	199·6345	grains.
„ Lithia	0·2342	„
„ Lime	19·1092	„
„ Baryta (and Strontia)	0·0108	„
„ Magnesia	76·5011	„
„ Protoxide of Manganese	0·0468	
Bi-borate of Soda	Trace	
Sulphate of Potash	3·6464	„
„ Soda	9·5148	„
Bromide of Sodium	0·0254	„
Chloride of „	72·6334	„
Iodide of „	0·0003	„
Nitrate of Soda	Trace	
Phosphate of Alumina	Trace	
Silicic Acid	1·1614	„
Total	382·5183	„
Carbonic Acid Gas (Free)	170·7642	„
Total constituents	553·2825	grains.

The Birresborn Water exercises a most favourable action on the digestive org It is, therefore, particularly recommended for the treatment of disorders of stomach; and even also for the more serious maladies of gout and calculus, in wh cures have been effected with its aid.

Hesse-Nassau.) BONIFACIUS. (Altitude, 825 ft

The carburetted saline springs of Salzschlirf are four in number, of which principal is the Bonifacius Spring, remarkable chiefly as a lithiated mineral reputed to contain a higher proportion of that element than any other known As is well known, lithia has, of recent years, assumed a prominent position in

erapeutical practice of the faculty as an important remedy for a numerous class of
ublesome diseases. The mineral water of the Bonifacius Spring is therefore highly
commended on account of the presence of an unusually high proportion of lithia, as
ll be seen from the following comparative statement. The proportion of lithium-
ts contained in one litre, or 1,000 grammes, of various mineral waters is as follows:
lzschlirf-Bonifacius, 0·218 ; Elster, 0·108 ; Budapest-Salvator Spring, 0·088 ; Baden-
den, 0·053 ; Durkheim, 0·039 ; Assmannshausen, 0·027 ; Homburg, 0·021 ; Kissingen,
20 ; Ober-Salzbrunn, 0·013 ; Bilin, 0·012 ; Weilbach, 0·009. It appears therefore
t the Bonifacius water contains a higher proportion of lithium-salts than any other
tural mineral water at present known.

The internal effect of the Bonifacius water on the system, when drunk, is to
mulate and regulate the action of the intestines and urinary organs, to promote the
version of albumen and other elements, and to dissolve and to remove certain
normal and prejudicial secretions and concretions—uric acid and its salts, calculus,
vel and gallstone. The Bonifacius water, being naturally highly charged with
bonic acid gas, is agreeable to the taste and most easily digestible. It undergoes
deterioration by storage or transport. As regards the dose, it may be taken daily
quantities up to one litre, and thus continuously for years, without exercising any
judical or other than beneficial effect.

The Bonifacius water is strongly recommended by the highest authorities of the
lical profession on the continent—as well as in recent treatises on medicine by the
nent Professors and Doctors Niemeyer-Seitz, Kehrer, Cantani, Ditterichs, Senator,
nze, v. Mering and others—on account of the high per centage of lithium, chloride
sodium, and carbonic acid which it contains. It is a valuable remedy for the
tment of gout, diseases of the bladder and kidneys, gravel and calculus, and biliary
cretions. It is also used with great success in chronic catarrhal affections of the
nach and intestines, habitual constipation, want of appetite, bronchial catarrh,
r complaints, jaundice, hemorrhoidal affections, rheumatism, scrofula, rhachitis,
ity, and rheumatic affections.

chemical composition of the Bonifacius Spring is shown by the following analysis, in grains per gallon.

Chloride of Sodium	716·912	grains
„ Magnesium	69·076	„
„ Lithium	15·274	„
Sulphate of Soda	9·919	„
„ Potash	11·214	„
„ Lime	109·179	„
Bicarbonate of Lime	46·431	„
„ Magnesia	0·581	„
„ Oxide of Iron	0·672	„
Iodide of Magnesium	0·343	„
Bromide of „	0·329	„
Silicic Acid	0·798	„
Total Solid Constituents	980·728	grains
Carbonic Acid gas (free)	58·102	grains

Temperature 10·6 Centigrade (51° Fahr.)

ses-Pyrénées, France.) BONNES. (Altitude 2300 ft.)

properties of this water are somewhat similar to those of Barèges and Cauterets,
ot being so exciting in its effects, it is more suitable for delicate persons and
en. It increases and promotes the natural secretions of the skin and kidneys,
very useful in asthma, catarrh, phthisis, quinsy, and other affections of the
tory organs.

SE.—From one-quarter to one-half of a tumbler, taken before breakfast, with
dition of two or three spoonfuls of boiling milk.

Analysis according to Professor Attfield, F.C.S. (1877.)

		Grains per Gallon.
1. SOLIDS.	Chloride of Potassium	2·40
	,, Sodium	17·59
	Sulphate of Soda	2·86
	Silicate of ,,	5·28
	Sulphate of Lime	11·14
	Silica	1·02
	Magnesium, Lithium, Nitrates, Phosphates	Traces
		40·29

2. GASES. Sulphuretted Hydrogen, 1½ cubic inches per gallon.

(Puy-de-Dôme, France.) BOURBOULE (LA). (Altitude 2600 ft.)

Sodio-chloruretted, bi-carbonated, arsenical, sparkling water.

The mineral water of La Bourboule—of which there are two chief springs "Choussy" and "Perriere"—is, of all known waters, that which contains the largest proportion of arsenic, allied with the best adjuncts for its assimilation. It is a natural arsenical medicament, far preferable to any pharmaceutical preparation, because it is in this form that arsenic is most easily digestible and most efficacious. By its use, moreover, all those risks of error by excess of quantity, which are not entirely inseparable from artificial preparations made in the laboratory of the chemist, are avoided. One litre of the water contains 28 milligrammes of sodic arseniate (or at the rate of 1·96 grains per gallon); so that the third part of a litre (nearly 3–5ths of a pint, or a large tumblerful) contains the average dose of arsenic pharmaceutically administered. Furthermore, the mineral constituents of the Bourboule water are the same as those of the blood. It contains about 6½ grammes of mineral salts, viz., nearly 3 grammes each of chloride of sodium, and bi-carbonate of soda, with other minor elements in small proportions; making it equivalent to the "mineral serum of the blood, issuing naturally from the bowels of the earth." This mineral water is, consequently, of all others the best adapted to repair the waste of the mineral constituents of the blood; it alone combines all the properties which go to constitute the most fortifying, the most restorative, and the most easily assimilated medicine. It is eminently fitted for, and digestible by delicate children, debilitated adolescents, and adults of weak constitution, on whom its revivifying influence is most remarkable.

The chemical composition of the Bourboule waters, as deduced from the analysis of Messrs. J. Lefort and Bouis, are as subjoined:

In grains per gallon.

Metallic Arsenic	0·4935	grains.
or Arsenious Acid	0·7567	,,
or Arseniate of Soda (Codex Standard)	1·9929	,,

The subjoined table shows the proportions of its other chemical constituents per litre:—

Carbonic Acid (free)	3·626	grains.
Chloride of Sodium	198·842	,,
,, Potassium	11·361	,,
,, Lithium	Trace	
,, Magnesium	2·240	,,
Bicarbonate of Soda	202·440	,,
,, Lime	13·335	,,
Sulphate of Soda	14·588	,,
Peroxide of Iron	0·147	,,
Protoxide of Manganese	Trace	
Silicic Acid	8·400	,,
Alumina	Trace	
Organic Matter	Trace	
Total	454·979	grains.

he Bourboule water is invaluable for the treatment of cachexia of all forms, orosis, anemia, lymphatism, scrofula, herpetism, cutaneous affections, tetter, ema, psoriasis, angina, bronchitis, laryngitis, asthma, pulmonary phthisis, and all petic affections of the respiratory passages, intermittent fever, visceral obstructions, onic rheumatism (arthritic), paralysis, chronic gout, albuminuria, and diabetes h cachectic complications.

he dose varies from half a tumblerful to two or three tumblerfuls a day, one-half quantity for children. It may be taken at mealtimes, pure or mixed with wine. netimes it is best taken half an hour before meals. If the digestive organs are at unfavourably affected by it, it may be warmed by the bain-marie, or mixed, either a warm infusion of limes, or with orange-peel juice, or Selters waters, etc. In of colics or diarrhœa, two or three drops of tincture of opium, or belladonna, may dded.

ourboule water, used as a lotion, local douche, or pulverised in the form of spray, general an effective cure for slight cutaneous diseases, or affections of the mucous nbrane, where accessible, especially when imbibed at the same time. It preserves freshness and beauty of the complexion, and heals chaps, by restoring the supple- of the epidermis.

ourboule Water undergoes no deterioration by bottling and exportation.

ecklenburg Co.
a., U.S.A.

BUFFALO LITHIA. (Altitude 500 ft.)

is alkaline water, fresh from the spring, is devoid of taste or odour, and stinguishable from ordinary potable water. There are three Springs, known as 1, 2, and 3, all of well established remedial value; but Spring No. 2 is the most rtant from the therapeutical point of view.

ofessor W. P. Tonry, of the Maryland Institute, Baltimore, gives the following ses of the Buffalo Lithia waters, of the three Springs. Results in grains per n.

	No. 1.	No. 2.	No. 3.
Sulphate of Magnesia	1·530	0·885	0·150
,, Alumina	8·180	9·067	3·035
,, Lime	19·251	33·067	2·353
,, Potash	0·463	—	—
Carbonate of Potash	—	29·300	1·852
Bicarbonate of Lime	39·277	14·963	2·524
,, Lithia	1·484	2·250	Traces
,, Baryta	—	1·750	—
,, Protoxide of Iron ...	0·500	0·300	3·774
hloride of Sodium	1·256	4·921	0·217
,, Silicon	1·725	1·873	0·570
hosphoric Acid	Traces	Traces	Traces
odine	Traces	Traces	—
rganic Matter	Traces	Traces	Traces
otal Number of grains, per gallon	73·666	98·376	14·475
ulphuretted Hydrogen...............	5·9 cubic ins.	8·3 cubic ins.	3·4 cubic ins.
arbonic Acid Gas	69·1 ,,	59·2 ,,	11·6 ,,

Buffalo Lithia Water is superior to any solution of Lithia Salts, artificially ed, for therapeutic use; and is, moreover, better borne by the stomach. It has into note, of recent years, as a valuable aid in the cure of all that large class of ers dependent on a Uric Acid Diathesis; Gout, Rheumatism, Rheumatic Gout, , and Calculus; in chronic Bright's Disease, and all affections of the Kidneys, er and Urethra, requiring alkaline treatment; in the various diseases of the ve organs, including Dyspepsia, Liver disease, Jaundice, Diarrhœa, Constipation, rrhoids; in Blood Poisoning, Chronic Malarious Fevers, chronic Gonorrhœa, and Scrofulous Affections; in some of the affections peculiar to Women, ularly in Suppressed, Difficult, and Painful Menstruation; in Albuminuria, , and Uræmic Poisoning, arising from Pregnancy; as well as in Albuminuria and cal Effusion, in Scarlatina patients.

(Vosges, France.) BUSSANG.

A ferruginous and alkaline water, very efficacious in strengthening the digestive organs, and correcting sluggishness of the bowels and kidneys.

DOSE.—Two or three half-pint tumblersful daily. If preferred it may be taken mixed with wine or lemon juice, and the best time for drinking this water is about half-an-hour before meals.

Analysis according to Ossian Henry.

			Per Gallon.
1. SOLIDS.	Carbonate of Soda	55·23	Grains.
	,, Lime	23·80	,,
	,, Magnesia	10·50	,,
	,, Strontia	Traces	
	,, Protoxide of Iron	1·19	,,
	Crenate of Iron, Manganese, and traces of Chloride of Sodium	5·46	,,
	Sulphates of Soda and Lime	7·70	,,
	Silicate of Soda	0·14	,,
	,, Lime		
	,, Alumina		
		104·02	Grains.
2. GASES.	Free Carbonic Acid	28·70	,,

(Bohemia.) CARLSBAD. (Altitude 1000 ft.)

The principal springs are the "Sprudel" and the "Schlossbrunnen." The waters are very useful in diseases of the stomach, liver, kidneys, bladder, spleen, also for diabetes mellitus, gout, chronic catarrh of the womb, &c., &c.

DOSE.—From half-a-tumblerful to two tumblersful to be taken in the morning fasting.

Analysis according to Gottl, in grains per gallon.

		Sprudel.	Schlossbrunnen.
		Grains.	Grains.
1. SOLIDS.	Sulphate of Soda	199·606	101·45
	Bicarbonate of Soda	90·624	85·55
	Chloride of Sodium	87·245	84·63
	Sulphate of Potash	3·696	115·58
	Bicarbonate of Lime	20·198	24·19
	,, Magnesia	3·994	2·99
	,, Protoxide of Iron	0·307	0.23
	Phosphate of Alumina	2·150	0·31
	Silica	10·520	4·30
		418·340	419·23
		Cub. Ins.	Cub. Ins.
2. GASES.	Carbonic Acid	78·033	173·767
	Nitrogen	0·318	0·632

The "Muhlbrunnen" is also imported, but is in very small demand—the composition of the water varies but slightly from the above.

y-de-Dôme, France.) CHATELDON.

Temperature 10° C. (50 Fahr.) Gaseous Alkaline and Ferruginous Waters. e following is the most recent analysis of these waters :—

Constituents in grains per gallon.

Carbonic Acid	152·46	grains.
Bicarbonate of Lime	36·12	,,
,, Magnesia	18·76	,,
,, Soda	26·67	,,
,, Potash	0·21	,,
,, Protoxide of Iron	2·45	,,
Sulphates of Soda and Lime	3·50	,,
Chloride of Sodium	2·10	,,
	242·27	grains.

he gaseous alkaline and ferruginous water of Chateldon (*Source de la Montagne*) long been successfully used for stomach diseases, such as—gastritis, gastralgia, k digestion, bile, vomiting, etc. In inveterate chronic gastritis, full doses of the ntagne water have produced the most wonderful effects.

hey are also used for diseases of the genital and urinary organs—gravel, calculus, hritic colics, and diabetes.

he limpidity, fresh and agreeable flavour of this water—which it retains for a long e when bottled—entitle it to a place in the front rank of mineral waters. For these ons also the Montagne water will always be in favour with physicians, for sons of a delicate stomach, and who cannot endure the taste of ferruginous ers in general. Chlorosis (paleness), anemia, and all the periodic diseases of ales, yield to this treatment, which is both inexpensive and agreeable.

hese waters are particularly adapted to relax the nervous system, and calm all spasms irregular emotions. They have also long been prescribed for nervous, hysterical, lymphatic females.

he Montagne water, from its richness in carbonic acid, mixes admirably with wine, hout alteration in colour or taste ; and it is far superior to the artificial aërated ers, of which the use is attended with such great disadvantages. Thus used, the ntagne water will be found the safest laxative as well as an excellent tonic for valescents.

he Chateldon water is very pleasant to drink, and is therefore an excellent table-er when mixed with wine.

osges, France.) CONTREXÉVILLE. (Altitude 3100 ft.)

Source Le Cler.

lcarco-Sulphated and Bicarbonated Water.—Temp. 11° to 12° C. (51° to 54°Fahr.)

nalysis of the *Le Cler* Spring :—

Constituents in grains per gallon.

Bicarbonate of Lime	28·00	grains.
,, Magnesia	2·31	,,
,, Soda	0·56	,,
Sulphate of Lime (anhydrous)	97·30	,,
,, Magnesia	16·45	,,
,, Soda	1·05	,,
Chloride of Sodium	0·56	,,
Silica, Iron, Alumina	2·45	,,
Total	148·68	grains.

The *Source Le Cler* flows from a subterranean vein at a lower level than that which supplies the other Contrexéville springs (*Sources du Pavillon, du Prince* or *des Bains, du Quai,* and *La Souveraine).* It is situated about 100 metres (310 feet) higher in level than the last-named, but is their perfect analogue.

The water of the Source Le Cler, secured and completely insulated by works recently executed, yields not less than 15,000 litres daily, clear and limpid, identical in taste and temperature with the other Contrexéville waters ; it is equally acceptable to the stomach, while in richness of mineral constituents it slightly surpasses them. But, notwithstanding its superior mineralisation, this water is digestible with extreme facility, and stimulates the digestive organs as well as all the secretions.

Its selective action on the urinary organs is such that the quantity of liquid expelled exceeds that of the water imbibed. It acts as a perfect flush, irrigating the lumbar regions, and washing away those uric acid sediments which, by agglomeration, constitute calculi. At a more advanced stage, when, in fact, calculi have taken the place of the preliminary sand or initial gravel, the observed facts justify the assertion that this water has the property of penetrating those calculi of recent formation, of facilitating their passage through the urinary canals, by drawing them along, and pushing them, after having polished them, while at the same time it imparts to the mucous membrane a power of tolerance of their presence by the cessation of its irritability through the reduction of inflammation. This modifying action on the mucous membrane accounts for the favourable influence of the Le Cler water upon vesical catarrh.

But it must not be thought, as some writers would have us believe, that the therapeutic effect of the Contrexéville waters ends with this mechanical flushing, consequent upon the copious imbibition of an easily digestible water. On the contrary, these waters, and particularly the *Source Le Cler,* by stimulating all the secretive organs, promote the process of elimination of all alimentary residues ; and it is by reason of this modification of the equilibrium between the entry and the discharge of nutritive substances, that it exercises so truly effective an influence on gouty diathesis, hepatic affections, diabetes, etc. In fact, all those diseases, nowadays classified under the generic name of manifestations of uric-acid diathesis, and that Professor Bouchard has so ably specified and described—diseases due to imperfect nutrition—are susceptible of favourable modification, and may be successfully treated by means of an agent which, like the *Source Le Cler* and other Contrexéville waters, so powerfully promotes the elimination of excess of uric-acid in the system.

The foregoing brief particulars will suffice to show how valuable a resource is offered to therapeutics in the *Source Le Cler.*

Source du Pavillon.

The Contrexéville waters are cold, clear and colourless ; they deposit in the pipes and reservoirs an oily and ochreous sediment, and on contact with the atmospheric air their surface becomes covered with an iridiscent film. They are fresh and agreeable to the taste, with an acidulated flavour, somewhat inky, leaving subsequently a styptic after-taste. Taken internally, they are rapidly absorbed. They bear carriage well.

The Pavillon Spring may be regarded as typical of the Contrexéville mineral waters. It yields a calcareo-sulphated and bicarbonated water, alkaline, with a preponderance of lime-salts, and containing aperient salines in the form of sulphates of soda and magnesia, also iron and arsenic, together with traces of fluoride of calcium. This spring is used exclusively for drinking, and yields no less than 12.230 gallons per day, issuing at a normal temperature of 11·5° Centigrade (52·25° Fahr.), and having a density of 1·029, or a little higher than that of distilled water.

As regards its mineralisation, we note that Dr. Cruise, of Dublin, in a recent pamphlet on these waters, states that Dr. Tichborne's analysis of the important Contrexéville waters found that the solid constituents amounted to 166·7 grains per gallon, as compared with 299·5 found in the water taken fresh from the spring. But the accepted analysis, as published, is that of Dr. Debray, as under :—

lysis of the *Pavillon* Spring ;—

Constituents in grains per gallon.

Bicarbonate of Lime	28·14	grains
,, Magnesia	2·45	,,
,, Protoxide of Iron...	0·49	,,
,, Lithia	0·28	,,
Sulphate of Lime	81·55	,,
,, Soda	16·52	,,
,, Magnesia	2·10	,,
Silica	1.05	,,
Chloride of Potassium	0·42	,,
,, Sodium	0·28	,,
Fluoride of Calcium	Traces	
Arsenic	Traces	
Total	133·28	grains
Carbonic Acid (free)	5·60	,,
Together...	138·88	grains

SE.—An ordinary dose of the Pavillon water is half a bottle daily, taken as a rink, with either milk, wine or spirit. According to effect, the quantity may be sed to a whole bottle. The water holds sufficient free carbonic acid to make it ant to drink, and to mask the slight inky flavour.

effects are diuretic, laxative, and lastly tonic, owing to the presence of iron, ic, and calcic-fluoride. In suitable moderate quantities it acts as a mild purgative, oting appetite, stimulating the blood-circulation, and the sudatory action of the as well as the flow of bile; and it exercises a special effect in augmenting ry secretion to a remarkable and valuable degree. It is, in fact, upon the urinary s that the Contrexéville water exercises its most powerful selective action. Its nce in the vascular system is manifested by a quickened pulse, more frequent ation and increased activity of all the secretions, more particularly those of the er and intestines. Its effect is rapid; a few hours sufficing for its elimination by idneys, and expulsion by the intestines; indeed, the diuresis engendered is greatly cess of the actual quantity of fluid taken into the system. Further, the water ises a solvent action on the mucous in the passages, and on small concretions which lodges and carries away. It effectually removes abnormal and morbid conditions e urinary mucous membranes, so as to correct and subdue excess of either or alkali in the urine. It is therefore a valuable adjunct in the treatment of diathesis, especially atonic, gravel and calculus, as well as in cystitis for which it is t a specific; for liver disease, diabetes; for nocturnal eneuresis (incontinence of) in children, and all chronic affections of the urinary organs.

dèche, France.) DESAIGNES.

Source César, called "Eau de César."

kaline sodio-bicarbonated water. Temperature 4° C. (39° Fahr.).

e *Eau de César*, for therapeutic use, has received the authorisation of the émie de Médecine, Paris, at their meeting of the 5th July, 1877.

recent analysis, made (March, 1881) partly on the spot by M. Ferrand, chemist, , member of the Conseil d' Hygiène du Rhône, etc., gave the following results, ne *Source César* :—

Constituents in grains per gallon.

Carbonic Acid (free)	211·82	Grains.
Bicarbonate of Soda	215·60	,,
,, Potash	18·13	,,
,, Lime	14·91	,,
,, Magnesia	10·43	,,
,, Protoxide of Iron.........	0·49	,,
Chloride of Sodium	7·28	,,
Sulphate of Soda	0·35	,,
Residue, insoluble in acids (Alumina, Silica)	2·94	,,
Total	481·95	Grains.

These waters are, therefore, rich in alkaline bicarbonates and comparatively poor i calcareous elements. Moreover, they are very rich, not only in free carbonic acid, but also in carbonic acid in combination, which, in fact, becomes entirely disengaged in wine, or even in the acid fluids of the stomach, and is therefore set free.

The *Source César*, known by the name of *Eau de César*, is one of the most highl gaseous springs in France; it contains 3 grammes of bicarbonate of soda per litre, bu more than 1½ volumes of carbonic acid; and that chemical composition renders it a eminently digestible water, and at the same time very agreeable to drink, for th carbonic acid completely masks the flavour of the alkaline salts.

That richness in carbonic acid is so much the more remarkable in that it is perfectl preserved when the water is bottled, which arises from the fact that the water is take under conditions of temperature that prevent the loss of the gas. In fact, this i what happens at the *Source de César*: the water issues from the rock at a very grea depth—it is taken at the very moment of its issue—its temperature, winter and sum- mer, is uniform, 4° C. above zero (about 39° Fahr.); and at that low temperatur the carbonic acid gas remains in a state of complete solution, and only makes i presence known by the piquant flavour which it imparts to the liquid.

It is so much the more necessary to emphasise these conditions under which th water is drawn, because they are perhaps unique of their kind, and fully account f and explain the wonderful results obtained by the use of this water.

The *Eau de César* has acquired a great reputation in France; the city of Ly alone consumes 500,000 bottles of the water.

(Germany.) EMS. (Altitude 291 ft

Ems is situated on the Lahn, in a narrow valley enclosed by lofty hills, and i temperature is constantly mild and in summer very relaxing. The waters are v useful in bronchitis and that form of catarrh which is frequently observed in g persons. The water has a beneficial action on the mucous membrane, especially cases of troublesome cough and copious or tenacious expectoration. These waters also prescribed for sluggish liver, dyspepsia—producing throat irritation, &c.

DOSE.—One to two bottles daily.

Analysis according to Fresenius in grains per gallon.

		Krähnchen. Grains.	Kesselbrunnen. Grains.
1. SOLIDS.	Bicarbonate of Soda	148·376	151·974
	Chloride of Sodium	70·841	77·705
	Sulphate of Soda	1·377	0·061
	„ Potash	3·286	3·937
	Bicarbonate of Lime	17·246	18·129
	„ Magnesia	15·051	14·360
	„ Protoxide of Iron	0·166	0·278
	„ „ Manganese	0·072	0·047
	„ Baryta „ Strontia	0·011	0·036
	Phosphate of Alumina	0·032	0·096
	Silica	3·797	3·648
		260·255	270·271
		Cub. Ins.	Cub. Ins.
2. GASES.	Free Carbonic Acid	83·249	67·886

Germany.) FACHINGEN. (Altitude 337 ft.)

er strongly resembles Selters, but is slightly more chalybeate. It is useful s of the bladder and kidneys, derangement of the digestive organs, acidity, &c.,

—Half a tumblerful before breakfast, and as an occasional beverage.

alysis according to Fresenius in grains per gallon.

LIDS.	Bicarbonate of Soda	280·883	Grains.
	„ Lime	28·960	„
	„ Magnesia	22·912	„
	„ Protoxide of Iron	1·103	„
	„ Strontia	0·008	„
	„ Lithia	0·006	„
	Sulphate of Soda	1·372	„
	Phosphate of „	0·506	„
	„ Lithia	0·002	„
	„ Lime	0·004	„
	„ Alumina	0·003	„
	„ Silica	2·610	„
	Fluoride of Calcium	0·027	„
	Chloride of Sodium	45·574	„
	„ Calcium	0·034	„
		384·004	Grains.
SES.	Carbonic Acid	329·750	Cub. Inches.
	Nitrogen	0.256	„ „
		330·006	Cub. Inches.

y.) FRIEDRICHSHALL. (Altitude 920 ft.)

er water, as a natural aperient, is both harmless and efficacious. It may ith impunity for a considerable length of time, and no evil effects are caused nged use, and it may be discontinued at any time without producing ice. It is useful in almost every form of disease affecting the liver, wels, &c., and is strongly recommended by many eminent members of the culty as a remedy in cases of calculous disease. It is also useful in the respiratory organs. It not only assists digestion but improves the

-A wine-glass to half-a-tumblerful half-an-hour before breakfast. If tion is required, or the bowels are much constipated, a little warm be added. For children the dose should be diminished in proportion

nalysis according to Liebig in grains per gallon.

IDS.	Sulphate of Soda	465·1	grains.
	„ Magnesia	395·5	„
	Chloride of Sodium	611·0	„
	„ Magnesium	302·5	„
	Bromide of „	3·7	„
	Sulphate of Potash	15·2	„
	„ Lime	103·4	„
	Carbonate of „	1·1	„
	„ Magnesia	11·6	„
	Silica	3·3	„
		1912·4	grains.
ES.	Carbonic Acid	53·2	cub. inches.

(Rhenish Prussia.) GEROLSTEIN. (Altitude 1200 f

An artesian well, near the ruins of Castle Casselburg (in the Eifel Mountai hence named the "Schlossbrunnen."

DOSE.—Being a table water, may be drunk *ad lib.*

Analysis in grains per gallon.

1. SOLIDS.	Carbonate of Soda	57·43052	grains.
	,, Lithia	0·07210	,,
	,, Lime	40·00010	,,
	,, Baryta	0·00623	,,
	,, Magnesia	31·96368	,,
	,, Protoxide of Iron	0·02212	,,
	,, ,, Manganese	0·01169	,,
	Sulphate of Potash	0·20076	,,
	,, Soda	7·18389	,,
	Chloride of Sodium	17·57238	,,
	Bromide of ,,	0·01470	,,
	Iodide of ,,	0·00014	,,
	Phosphate of Soda	0·01547	,,
	Silicic Acid	5·82428	,,
		160·31806	grains.
2. GASES.	Carbonic Acid in combination with carbonates, as bi-carbonates	58·23916	grains.

(Yorkshire.) HARROGATE. (Altitude 420 f

These waters have a great reputation for the cure of skin diseases, and in t successful treatment of those complaints arising from a bad condition of the bl produced by indigestion, gout, rheumatism, chorea, chlorosis, anæmia, &c. wh frequently precede, and cause disease of the skin. The water is very useful cases of lead and mercurial poisoning, secondary symptoms of syphilis, &c.

DOSE.—From a tumblerful to a bottle daily; the first dose to be taken bei breakfast.

Analysis of the Old Sulphur Well, according to Dr. Hofmann in grains to the gallon.

1. SOLIDS.	Sulphuret of Sodium	15·48	grains.
	Sulphate of Lime	0·13	,,
	Carbonate of ,,	12·37	,,
	Fluoride of Calcium	trace	
	Chloride of ,,	81·74	,,
	,, Magnesium	55·69	,,
	,, Potassium	64·70	,,
	,, Sodium	860·18	,,
	Bromide of ,,	trace	
	Iodide of ,,	trace	
	Ammonia	trace	
	Carbonate of Protoxide of Iron	trace	
	,, ,, Manganese	trace	
	Silica	0·25	,,
		1090·54	grains.
2. GASES.	Carbonic Acid	22·00	cub. inches.
	Carburetted Hydrogen	5·84	,,
	Sulphuretted ,,	5·31	,,
	Nitrogen	2·91	,,
		36·06	cub. inches.

Homburg.) HOMBURG. (Altitude 600 ft.)

rg is situated about two miles distant from the Taunus Mountains, and is ce-quarters of an hour by railway from Frankfort. The air is very bracing he summer months. There are several springs, of which the "Elisabeth" is pal. The water is laxative and tonic, and is very useful in cases of torpidity wels and the digestive organs. It is prescribed in cases of venous congestion bdominal organs, plethora, dyspepsia, chlorosis, hysteria, hypochondria, ccurring after typhus or intermittent fevers, engorgements of the liver and active circulation of the portal system, &c.

—About three tumblers daily.

alysis of the "Elisabethbrunnen," according to Liebig, in grains per gallon.

OLIDS.	Chloride of Sodium	791·5	grains.
	,, Magnesium	77·9	,,
	Carbonate of Protoxide of Iron	4·6	,,
	,, Lime	109.9	,,
	,, Magnesia	20·1	,,
	Sulphate of Soda	3·8	,,
	Silica	3·2	,,
		1011·0	grains.
ASES.	Free Carbonic Acid	214·8	grains.
		(484·6	c. i.)

ury.) HUNYADI-JÁNOS. (Altitude 460 ft.)

pring is one of the Ofen group, situated near Buda on the Danube. The perient, and is recommended for habitual constipation, for persons of gouty emorrhoids, disorders of the liver, in chronic affections of the organs of n and circulation, in organic diseases resulting from fatty degeneration and egnancy, and in many diseases peculiar to females, and as a safeguard against onsequences of indiscretion in diet.

—For ordinary aperient purposes a half wine-glassful may be taken at bed- wine-glassful taken in the morning fasting. It is most efficacious when o a temperature not below 60°, or when an equal quantity of hot water is it.

Analysis according to Bunsen.

In grains per gallon.

OLIDS.	Sulphate of Soda	1578·598	grains.
	,, Magnesia	1564·500	,,
	,, Potash	8·442	,,
	Bicarbonate of Soda	47·320	,,
	,, Strontia	1·890	,,
	,, Protoxide of Iron	0·042	,,
	,, Lime	55·769	,,
	Chloride of Soda	119·336	,,
	Silicious Salts	0·742	,,
	Total Solid Constituents	3376·639	grains.
ASES.	Carbonic Acid, free and half combined...	36·582	grains.

(Buda-Pest, Hungary) HUNYADI-LÁSZLÒ.

APERIENT BITTER WATER.

The following is extracted from the *Bulletin de l'Académie de Médecine* January, 1882):—

"M. A. S., the owner, residing at Vienna (Austria), and represented at Paris the Compagnie Générale des Eaux Minérales et Bains de Mer, has requested authorisation for the introduction and sale, in France, of the mineral water ca Hunyadi Lászlò, situated at Buda-Pest (Austria-Hungary).

"This spring, the source of which is quite near to those of Hunyadi Já Francis-Joseph, Victoria and Rákóczy, has the following constituents, in grains gallon:—

Sulphate of Magnesia	1691·90	grains.
" Soda	1611·40	"
" Potash	6·30	"
" Lime	127·40	"
Bicarbonate of Soda	47·18	"
Chloride of Sodium	92·61	"
Iron and Alumina	0·70	"
Silica	3·50	"
Total inorganic elements	3580·99	grains.

"From its composition this water is to be classed among mineral waters. therefore, recommend the Academy to pronounce a favorable opinion, in order the Hunyadi-Lászlò spring may be employed in France for medical purposes.

"The conclusions of the present report, on being put to the vote, were adopted the Academy."

The region of the bitter saline waters of Ofen (Buda-Pest), comprises a seri springs (eight in number), very similar in composition, and offering a very graduated mineralisation, as will appear from the annexed table, taken from analysis made by Professor Balló, of Buda-Pest. This table only gives the i important mineral constituents, for the chief springs—in grains per gallon:—

	Hunyadi Lászlò. Grains.	Hunyadi János. Grains.	Rácóczy. Grains.	Széchen Grain
Magnesia and Sulphuric Acid	1694·455	1569·526	1454·95	723·66
Soda and Sulphuric Acid	1594·670	1254·911	1012·34	1050·55
Chlorate of Potash	11·144	11·039	10·64	8·46
Lime	114·044	105·854	—	89·19
Total fixed constituents...	3575·005	3141·544	2833·74	1998·20

It will be interesting to give the complete analysis of the Hunyadi Lászlò w made on the spot by Professor Balló (the official chemist of Buda-Pest), for com son with that of the Academy. It will be seen that, with some insigni differences, they are identical.

In grains per gallon.

Sulphate of Magnesia	1694·455	grains.
" Soda	1594·670	"
Chlorate of Potash	11·144	"
Lime	114·044	"
Bicarbonate of Soda	47·180	"
Chloride of Magnesium	108·262	"
Alumina	0·980	"
Bicarbonate of Iron	0·182	"
Silicates	4·088	"
Total	3575·005	grains.

quantity of carbonic acid being 28·707 grains per gallon, deducting that which
bined with soda, there remains 3·997 grains of free carbonic acid.

Hunyadi László water, mineralised in almost equal proportions by the sulphates
a and magnesia, accompanied by an alkaline chloride, and by a certain pro-
n of bi-carbonate of soda and free carbonic acid, constitutes, in virtue of these
ous, and by the considerable quantities of its chief elements, a laxative medica-
free from all the inconveniences of drastic purgatives, and the action of which
ays certain, while it may be mild or energetic at pleasure.

proportion of the neutral sulphates which it contains allows of, and even often
sitates it being taken in small quantities. This is a great advantage, if only on
nt of the bitterness, of which this kind of natural preparations can never be
ted.

SE.—A table-spoonful or a claret-wineglassful is sufficient for young children.
neglassful or two suffices equally to obtain a laxative effect in the case of adults.
ger dose will of course produce a more powerful effect.

ssen-Nassau.) JOHANNISBRUNNEN.

is spring of natural mineral water is situated near Zollhaus Station, Aarthal, in
rovince of Hesse-Nassau, Germany. The water issues from a very deep cleft in
k at a temperature of 50° Fahrenheit, and is as clear as crystal. It is highly
ged with free carbonic acid gas, of great purity, and contains bicarbonates and
ides in such proportions as to render it agreeable to the taste and perma-

erapeutically, the Johannisbrunnen water stimulates the functions of the
ous membranes and quickens the circulation of the blood. It is highly
mmended in cases of indigestion and feeble appetite, also for rheumatic affections,
t is valuable for persons of a sedentary occupation. It may be taken pure or
d with hot milk. On account of the large proportion of carbonic acid, it is an
lent tonic and table water, alone or with wine or cognac. It is of great purity
contains no traces of organic matter. It can be exported and stored for a long
without deterioration.

e chemical composition of the Johannisbrunnen water appears from the following
sis, made on the spot by Dr. H. Plaskuda, Cologne.

	Grains per gallon.
Bicarbonate of Soda	25·5789
„ Potash	0·9128
„ Lithia	0·0889
„ Lime	51·8238
„ Magnesia	21·2674
„ Protoxide of Iron	0·0686
„ „ Manganese	0·1456
Chloride of Sodium	71·6037
Sulphate of Soda	2·0797
Silicic Acid	0·7910
Total solid constituents	174·3604
Free Carbonic Acid	170·6670
Total	345·0274

varia.) KISSINGEN. (Altitude 600 ft.)

tuated in a charming valley, surrounded by orchards, vineyards and woody
ntain scenery. There are several springs, of which the Rakoczy—so named from
discoverer, a Croatian officer—is the principal, and is the one chiefly used for
king purposes. The water is clear and sparkling; the taste saline, bitter, and
htly astringent. It is very beneficial to persons suffering from atonic dyspepsia
laxity of the intestinal fibre, excessive mucous secretion impeding the abdominal

functions, and weakness proceeding from age or exhausting disease. It is also useful in cases of hepatic derangements, scrofula in persons of phlegmatic and torpid constitutions. Helminthiasis and hæmorrhoids are frequently cured by a course of the Kissingen waters.

DOSE.—One bottle daily.

Analyses.

In grains per gallon.	Rakoczy, by Liebig. Grains.	Pandour, 1856. Grains.	Max Brunnen Heckenlauer, 18 Grains.
1. SOLIDS. Chloride of Sodium............	407·5435	386·4497	162·1343
,, Potassium	20·0830	16·8980	26·3232
,, Magnesium	21·2653	14·8141	7·5606
,, Lithium	1·4014	1·1760	0·0510
,, Manganese	41·1873	41·8439	14·0186
,, Calcium	27·2559	21·0308	13·3184
Bicarbonate of Magnesia	1·1928	3·1353	4·7880
,, Lime	74·2672	71·0388	39·5643
Proto-carbonate of Protoxide of Iron	2·2106	1·9397	0·1687
Phosphate of Lime	0·3927	0·3654	0·3500
Silicic Acid.......................	0·9030	0·2870	0·2380
Nitrate of Soda..................	0·6517	0·2471	5·4124
Bromide of Sodium	0·5866	0·4963	...
	598·9410	559·7221	273·9275
2. GASES. Free Carbonic Acid	91385·0	105385·0	88025·0

(Rhenish Prussia.) KREUZNACH. (Altitude 285 ft.)

This water is employed both internally and externally with great benefit in cases of scrofula, and glandular swellings.—Dr. Sutro says: "In whatever form the disease (scrofula) may appear, whether the glands of the neck be swollen and indurated, or whether the eyes, ears, nose, mesenteric glands or bones become affected, Kreuznach will be found beneficial." The water is also used in cases of constitutional syphilis, diseases of the skin, rheumatism, paralysis, tuberculosis, and leucorrhœa. Outwardly it is chiefly used in the form of Motherlye or salts, directions for the use of which are given on the bottles.

DOSE.—Half-a-pint to a pint daily.

Analysis of "Elisenquelle," according to Lowig, in grains per gallon

1. SOLIDS.	Chloride of Sodium	728·83	Grains.
	,, Calcium	133·89	,,
	,, Magnesium...........................	40·71	,,
	,, Potassium	6·24	,,
	,, Lithium	6·13	,,
	Bromide of Magnesium	2·78	,,
	Iodide of ,, ...	0·35	,,
	Bicarbonate of Lime	16·93	,,
	,, Baryta	0·10	,,
	,, Magnesia........................	1·06	,,
	,, Protoxide of Iron	1·50	,,
	Silica	1·29	,,
	Phosphate of Alumina............................	0·25	,,
		940·06	Grains.

rsalzbrunn, Silesia.) KRONENQUELLE.

is a sodio-lithiated saline water, slightly ferruginous, clear as crystal, devoid of nd odour, and having a crisp, agreeable and slightly saline flavour. It is of sed therapeutical value for the treatment of nephritic and arthritic affections, ity diathesis. It ranks among the soda-lithia springs, and as a prophylactic tendency of uric acid to form concretions in the joints and to crystallise in the and bladder, resulting in gravel and calculus. This favourable action is due quantity of lithia contained in the water, in conjunction with the natural and us combination, in quantity and quality, of the constituents necessary as nts for uric acid.

vater keeps very well, and bears transport, retaining its valuable properties ng period. When kept in bottles, the small quantity of ferrous bicarbonate t contains precipitates in brownish flakes of hydroxide of iron ; and this sedi- ay be left or taken by the patient with perfect safety. One or two bottles are ken daily during active treatment, diet being properly regulated, and wines irits in general avoided or taken in limited quantity. The use of the iould be continued for some little time after recovery (about 2 or 3 bottles a nd renewed from time to time for a week or two.

ssor Poleck's careful analyses give the following as the chemical constituents ronenquelle water, in grains per gallon :—

Chloride of Sodium	4·1293	grains
Sulphate of Soda	12·6070	,,
,, Potash	2·8602	,,
Bicarbonate of Soda	61·0848	,,
,, Lithia	0·7980	,,
,, Lime	49·8848	,,
,, Magnesia	28·3339	,,
,, Strontia	0·1960	,,
,, Protoxide of Manganese	0·1267	,,
,, ,, Iron	0·6391	,,
Phosphate of Alumina	0·0252	,,
Alumina	0·0329	,
Silicic Acid	2·4220	,,
Total Solid constituents	163·1399	grains

Free Carbonic Acid (at 50° Fahr. and
Bar. 30) in 1000 parts by volume .. 849·4 parts

LEAMINGTON SPA.

a natural saline mineral water of considerable repute, from long date, as a agent. It has a recognised therapeutical value, in the treatment of dyspepsia estion, chronic or acute ; congestion of the liver and kidneys, and the internal ons and congestions peculiar to the female sex ; piles or hæmorrhoids ; gout, c gout, and articular rheumatism, muscular rheumatism and cramps, and all sciatica ; poverty of the blood (these waters being used in conjunction with ns of iron salts) ; palsy and lead poisoning ; scrofulous, lymphatic and other enlargements ; rickets ; tubercular disease of the digestive organs ; enlarged goitre ; wasting diseases of children ; chorea or St. Vitus' dance ; jaundice, ent of the spleen ; eczema and certain other forms of cutaneous affections ; pra, and psoriasis.

ual dose is half-a-pint, warm or cold, on rising in the morning ; but in some ticularly of chronic disease, one pint, taken in two doses, is required. Walk- ise should intervene. The water exercises a mild stimulating effect on the functions of the bowels and kidneys.

The latest analysis by Mr. James Cutting, of the Pump Room Well, agrees with other modern and ancient results, and indicates the following chemical constitution of the Leamington Waters. Temperature, 40° Fahr. Sp. Gr. 1·0127.

	Grains per gallon.
Sulphate of Soda	287·76
Chloride of Sodium	688·16
„ Calcium	166·32
„ Magnesium	94·88
Silica	0·96
Iron	0·88
Iodide of Magnesium	Trace
Bromide of „	„
	1238·96

Carbonic acid is the chief gaseous constituent, with small quantities of oxygen and nitrogen.

(Bohemia.) MARIENBAD. (Altitude 1900 ft.

This spa is beautifully situated about twenty-five miles from Carlsbad, and is o comparatively modern origin. The water owes its efficacy chiefly to the sulpha of soda, and is of course purgative. It is chiefly used in diseases arising from luxurious habits, plethora, abdominal enlargement, gravel, gout, and derangement o the digestive organs. It is also used for hæmorrhoids, gall stones, congestion of th brain and its membranes, maladies of the eye, hypochondriasis and chronic catarrh of the uterus and many female complaints.

DOSE.—One bottle daily.

Analysis according to Kersten in grains per gallon.

		Kreuzbrunnen. Grains.	Ferdinandsbrunne Grains.
1. SOLIDS.	Sulphate of Soda	362·69	387·66
	Bicarbonate of Soda	123·94	139·99
	Chloride of Sodium	111·66	153·97
	Sulphate of Potash	4·49	4·99
	Bicarbonate of Lithia	0·77	1·10
	„ Lime	66·30	60·21
	„ Strontia	0·17	0·08
	„ Magnesia	53·99	52·99
	„ Protoxide of Iron	4·82	6·53
	„ „ Manganese	0·53	1·66
	Phosphate of Alumina	0·54	0·14
	„ Lime	0·18	0·15
	Silica	6·79	7·41
		736·87	816·88

(Vermont, U.S.A.) MISSISQUOI.

The spring is situated about three miles from the town of Sheldon, Franklin C Vermont, and has a local reputation in cases of cancer, diseases of the kidne scrofula, cutaneous affections, and impurities of the blood.

DOSE.—One bottle a day, as follows; a tumblerful one hour before breakfast, a a like quantity before each meal, and a tumblerful on retiring for the night: the l may be dispensed with ~~if it~~ produces wakefulness.

ANALYSIS.—The proprietors withhold the analysis on the ground that its pul cation might lead to imitations, remarking that—" In no aspect of the case woul published analysis of the Missisquoi spring water accomplish any good, but, on t contrary, it might be productive of much evil."

sica.) OREZZA. (Altitude 1730 ft.)

s water is ferruginous and is chiefly used for drinking purposes, and as it con- large proportion of free carbonic acid and bicarbonates, it is readily absorbed he system. It is useful as a tonic in cases of debility, weak appetite and ion, and also in female complaints, chlorosis, fluor albus, chronic affections of limentary canal, and generally in all affections arising from debility of the 1.

SE.—It may be drunk freely as a table water, or if the digestion is very weak, ialf to one tumblerful may be taken to commence with, and the dose gradually sed to one bottle per day.

Analysis according to Poggiale in grains per gallon.

.. SOLIDS.	Bicarbonate of Lime	42 14	grains.
	„ Magnesia................	5 18	„
	„ Protoxide of Iron	8·96	„
	Sulphate of Lime	1·47	„
	Chlorate of Potash	0·98	„
	„ Soda		„
	Aluminium	0·42	„
	Silicic Acid	0·28	„
		59·43	grains.
.. GASES.	Free Carbonic Acid	1·248 per 1.000 prts.	

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ire, France.) POUGUES. (Altitude 780 ft.)

is bath at one time enjoyed great popularity, and after having been much cted is now regaining its celebrity. The water is very useful in dyspepsia, ll, catarrh of the bladder, and chronic disorders of the digestive organs. It con- very little carbonic acid, and when bottled for exportation it has been found ible to increase the quantity, as otherwise the water deteriorates very rapidly.

SE.—One bottle daily—one or two glasses to be taken before breakfast, and one an hour or two before dinner.

nalysis according to Ossian Henry, "St. Leger" Spring, in grains per gallon.

.. SOLIDS.	Bicarbonate of Lime..................................	92·883	grains.
	„ Magnesia	68·334	„
	„ Soda, with traces of Potash	44·534	„
	„ Protoxide of Iron	1·442	„
	Sulphate of Soda	18 900	„
	„ Lime	13·300	„
	Chloride of Magnesium	24,500	„
	Silicic Acid and Alumina	2·450	„
	Glairine	2·100	„
		268.443	grains.

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hemia.) PÜLLNA. (Altitude 1225 ft.)

ese are cold springs, with sulphates, known as bitter waters, on account of the of the water. From its low temperature, the nature of its salts, and the com- ive freedom from free gas, the Püllna water preserves its qualities, in transport storage, without detriment to its medicinal properties. It is one of the most cious purgatives known to the faculty, though mild in its action. According to iel's analysis, one litre (1,000 cubic centimetres) contains 62 grammes of salts, rising 21 grammes of sulphate of soda, and 34 grammes of sulphate of magnesia;

together with small quantities of lithia and bromide of potassium, which increase in a high degree its medicinal action, and impart the peculiar and valuable characteristics which distinguish a natural aperient mineral water, as more salutary than, and far superior to, any artificial preparation of the salts, as a medicament. The municipal authorities of Püllna are the proprietors of these springs, and every care is officially taken in the bottling to preserve the pure natural character of the "Püllnaer Gemeinde-Bitterwasser."

This water acts powerfully as a purgative, and the action is assisted by the addition of an equal part of warm water. It is very useful if taken occasionally in constipation of the bowels, torpid condition of the liver, and generally in a congested state of the brain, thoracic and abdominal viscera, and hæmorrhoidal vessels. It is a powerful solvent, and is beneficial in counteracting a tendency to gout and the formation of calculous concretions, and it may be taken with advantage by females of a full habit, who suffer from painful and difficult menstruation, and who require a frequent aperient.

DOSE.—A wineglassful, either pure or mixed with warm water, taken an hour before breakfast; and in obstinate cases a similar dose at bed time. The water should be taken fasting. For children under 7 years of age the dose is from one to two table spoonfuls. To disguise the bitter flavour, if necessary, small quantities of milk, tea, coffee, fruit liquor, or of white or red wine, may be mixed with the water.

Analysis according to Dr. Struve in grains per gallon.

1. SOLIDS.	Sulphate of Soda	1238·00	Grains.
	,, Potash	48·00	,,
	,, Lime	26·00	,,
	Carbonate of ,,	7·70	,,
	Sulphate of Magnesia	930·86	,,
	Chloride of Magnesium	166·66	,,
	Carbonate of Magnesia	64·06	,,
	Phosphate of Lime	0·03	,,
	Silica	1·76	,,
		2483·07	Grains.
2. GASES.	Carbonic Acid	20·34	Cubic Inches.

(Waldeck.) PYRMONT. (Altitude 400 ft.)

A valuable ferruginous water, of service in dyspepsia, diarrhœa, chlorosis, debility after fever, loss of blood, &c., &c., also for constitutional weakness.

DOSE.—Half-a-pint two, three, or even four times a day, according to circumstances. It may be used as a beverage at meals—mixed with wine, if preferred.

Analysis according to Professor Wiggers, in grains per gallon.

		Trink-brunnen-grains.	Neu-brunnen. grains.
1. SOLIDS.	Bicarbonate of Protoxide of Iron	5·77	4·57
	,, Protoxide of Manganese	0·45	10·13
	,, Lime	104·77	123·74
	,, Magnesia	1·72	2·15
	,, Ammonia	0·03	Traces.
	Sulphate of Lime	90·54	4·74
	,, Potash	2·33	4·99
	,, Soda	—	22·19
	,, Magnesia	38·89	29·51
	Chloride of Sodium	5·15	89·08
	,, Lithium	0·26	0·14
	,, Magnesium	6·96	—
	Nitrate of Soda	0·01	0·01
	Silica	0·26	2·87
	Alumina	0·11	1·33
		257·25	295·45
2. GASES.	Free Carbonic Acid	154·08	136·62

enish Prussia.) **ROISDORF.** (Altitude 1000 ft.)

This spring is situated near Bonn on the Rhine.

SE.—Being a table water, it may be drunk *ad lib.*

Analysis according to Bischof in grains per gallon.

		Trink-quelle. Grains.	Stahl-quelle. Grains.
1. SOLIDS.	Chloride of Sodium	146·0	38.6
	Bicarbonate of Soda	60·4	13·8
	„ Lime	21·6	21·8
	„ Magnesia	30·6	10·3
	„ Protoxide of Iron	0·5	2·0
	Silica	1.2	7·0
		260·3	93·5
2. GASES.	Carbonic Acid	190 Cub. Inches.	

hzell, Ober-Hessen, Germany.) **ROMAN SPA.**

e waters of the Roman Spa Springs, near Echzell, in Oberhessen, Germany, are e classed in the category of so-called acidulated mineral waters, strongly egnated with carbonic acid, and holding in solution considerable quantities of bonates, alkaline salts, carbonate of magnesia, etc. The water issues from the ıg at a temperature of 51° Fahr., is clear and sparkling, and has a pleasant ıg flavour. From the combination of mineral constituents, and the large quantity rbonic acid gas contained—in every 1,000 parts; by volume, there are 3,560 parts rbonic acid, free and partly fixed, being a greater proportion than any other vn natural mineral water—the Roman Spa waters are admirably adapted for table They are carefully bottled in their natural state, and bear transport and storage out deterioration. They are perfectly pure and free from organic matter or other ful ingredients.

ccording to the latest analysis of these waters, made by Dr. Fresenius in 1884, r chemical composition is as under:

	Grains per gallon.
Chloride of Sodium	116·067
„ Potassium	4·697
„ Calcium	13·139
Sulphate of Lime	9·625
Carbonate of „	56·630
„ Magnesia	105·826
„ Protoxide of Iron	3·066
Silicic Acid	6·146
Total Solid Constituents	315·196
Carbonic Acid (free and in solution)	216·363
Total	531·559

ermany.) **ROSBACH.**

This spring is situated not far from Homburg.

OSE.—Being a table water, it may be drunk *ad lib.*

Analysis according to Professor Wanklyn.

e gallon (70,000 grains) contains in solution—

1. SOLIDS.	Chloride of Sodium	83·0 Grains.
	Bicarbonate of Lime	25·7 „
	„ Magnesia	12·6 „
		121·3 Grains.

(Puy-de Dôme, France.) ROYAT. (Altitude 1400 ft.)

The Royat waters are assimilated to the serum of the blood, and Dr. Gubler (Professor of Therapeutics of the Faculty of Medicine at Paris) has called them "mineral lymph." Owing to the presence of iron, arsenic and other fortifying and restorative elements (such as chloride of sodium, sodic iodide and bromide, and carbonate of lime and magnesia, etc.) they are especially valuable for the treatment of anemia, chlorosis, and general debility; as also of catarrhal affections of the digestive and respiratory organs, conjoined with general weakness and a gouty or rheumatic diathesis. These waters are endowed with a high degree of tonic and resolvent action, and are prescribed (in addition to the foregoing maladies), for gastro-intestinal dyspepsia, glandulous angina, laryngitis, bronchitis, humid asthma, diabetes, uric gravel, catarrhal affections of the genito-urinary canals, articular visceral gout and rheumatism, and cutaneous diseases.

There are three springs—Cæsar, Saint-Mart, and Saint-Victor.

CÆSAR SPRING.—This water is diuretic, tonic, and antidyspeptic. It is extremely limpid, colourless, inodorous, and of a very agreeable acidulated flavour, slightly ferruginous and alkaline. Its constant temperature is 84° Fahr., and its density 1·0016. It exercises on the physical economy all the action of the alkaline waters, without their inconveniences. It is an exquisite table water, and may be mixed with wine, upon which it has no decomposing effect. A remarkable property of the Cæsar water of Royat is its diuretic action. In catarrhal affections of the bladder, gravel or gout, it may be relied upon to exercise an elective modifying action upon the genito-urinary organs. In a state of ordinary health, the Cæsar water stimulates the mucous membrane of the stomach, promotes the appetite, augments the urinary secretion, facilitates digestion, and relieves nausea. In short it may be advantageously employed in the treatment of cases of difficult and painful digestion, chlorosis, chloro-anemia, neuralgia, liver complaint arising from prolonged indigestion, diabetes, gravel, vesical and uterine catarrh, leucorrhea, seminal weakness, neurosis, and in some kinds of intermittent fevers, as well as in dilatory convalescence after grave febrile maladies.

SAINT-MART SPRING.—A tonic, antidyspeptic and antiarthritic water. This water is limpid, colourless and inodorous, of an acidulated flavour, slightly alkaline, arseniated and lithiated. Its temperature is 88° Fahr. This is also an excellent table water, and does not decompose wine when mixed therewith; it is easily digestible on account of the large proportion of carbonic acid. Its chief characteristic is its resolvent property, and it exercises a manifest diuretic effect. The Royat Saint-Mart water is admirably adapted for persons suffering from imperfect digestion, gastro-intestinal dyspepsia, gastralgia, and passive congestions arising from defective blood circulation, especially in connection with arthritic affections (rheumatism or gout). It is applicable to the treatment of anorexia, pyrosis, uric gravel, diabetes, and albuminuria, etc., conjoined with gouty or rheumatic diathesis.

SAINT-VICTOR SPRING.—A tonic, restorative, antianemic water. This is the most highly ferruginous of the Royat waters; and like the others, very limpid, colourless, inodorous, with an acidulated flavour, slightly alkaline. Its temperature is 68° Fahr. Chief among its restorative mineral constituents are iron and arsenic. Abundantly charged with carbonic acid, these waters bear transport and storage well, and preserve their peculiar properties. The Royat Saint-Victor water may be taken pure or mixed with wine, which it does not decompose. It is resolvent, restorative, stimulating, and tonic; facilitates digestion, promotes assimilation, and stimulates the general circulatory and secretory functions. It is particularly suitable to females, especially girls and young women suffering from chlorosis, amenorrhea, dysmenorrhea, neuralgia, gastralgia, gastro-intestinal dyspepsia, sterility, and debility. It is highly recommended for delicate persons during convalescence from any grave malady.

The Thermal Establishment of Royat is fitted up with all the modern appliances of hydro-therapeutics. There are 115 baths of flowing thermal water, large swimming bath, besides douches, appliances for inhalation, pulverisation, etc., a gymnasium, and special carbonic acid baths and douches. There is also a Casino, in which are given, during the season, concerts and theatrical performances.

chemical composition of the three Royat Springs above-named, by M. Truchot . Lefort, is given in the annexed table of analyses, showing their solid and s constituents.

SPRING.	St.-Mart (M. Truchot.)	St.-Victor (M. Truchot.)	Cæsar (M. Lefort.)
Yield in gallons in 24 hours............	5·500	6·600	7·590
Temperature (Fahrenheit)	88°	68°	84°
Solid Constituents per gallon	grains.	grains.	grains.
Bicarbonate of Soda	56·021	62·202	27·440
„ Potash	13·146	16·100	20·020
„ Lime......................	67·872	70·847	48·020
„ Magnesia	45·556	45·248	27·790
„ Protoxide of Iron......	1·610	3·920	1·750
„ „ Manganese	trace	trace	trace
Sulphate of Soda	10·241	11·585	8·050
Phosphate of „	trace	trace	0·980
Chloride of Sodium	109·585	115·479	53·620
Iodide and Bromide of Sodium	traces	traces	traces
Silica	6·615	6·650	11·690
Alumina and organic matter.........	traces	traces	traces
Chloride of Lithium	2·450	2·450	0·630
Arseniate of Soda (Codex)	0·091	0·315	0·049
Total Solid Constituents	313·187	334·796	200·039
Free Carbonic Acid Gas	119·63	104·44	860·3

nees, Spain.) **RUBINAT.**

Rubinat natural mineral purgative water belongs, by its composition, to the group sodio-sulphated waters, having a temperature of about 60° Fahr. on issuing from ing, and being bright, colourless and inodorous, with a slightly saline flavour. is approved by the Paris Académie de Médecine, and licensed by the French ment.

ch mineralisation places it in the first rank of natural mineral aperient waters haps the most valuable, on that account, for therapeutic uses. The usual dose inat water, to ensure a non-irritating but strongly purgative effect, is from a one wine-glassful, taken in the morning fasting. Its action is prompt, especially ved by a cup of hot tea, coffee, or milk.

Rubinat laxative water is invaluable for the treatment of all intestinal ints, congestion, constipation, and generally all abdominal obstructions ; as also mulations of bile, etc., and gastric fever.

its analysis by Professor Bouchardat, the chemical composition of the Rubinat ppears to be as under :—

	Grains per gallon.
Sulphate of Soda	6748·707
„ Potash	16·120
„ Magnesia	228·540
„ Lime....................................	136·004
Chloride of Sodium............................	144·064
Silica, Alumina, and Ferric Oxide (trace)...	2·100
Total solid constituents.........	7275·535

icq, Basses-Pyrénées, France.) **SAINT BOÈS.**

tural, sulphonaphthalic, Arsenical, Ioduretted, Water, unique in chemical tion and therapeutic qualities ; it is cold (temperature 54° Fahr.) limpid, sulphuretted and naphthalic. It bears transport and storage without ation.

The St. Boès water is a powerful natural specific against the various diseases of the skin, and of the mucous membranes generally, of the bronchia, lungs and chest. It i invaluable for the treatment of bronchitis, laryngitis, angina, phthisis, both pulmonary and laryngeal, all kinds of catarrh, asthma, chronic diseases of the stomach, dyspepsia, gastritis, gastralgia, imperfect digestion, chronic venereal diseases, tetter, eczema, etc.

This special water should be taken under medical prescription. The dose varies from a spoonful to a glassful (according to the nature of the disease and the age of the patient), two or three times a day, some time before or after meals, and either pure or mixed with milk or syrup. It may also be used as a gargarism, or by inhalation in the form of spray with the aid of a pulveriser *ad hoc,* in which case hot milk or syrup may also be added.

ST. BOÈS NAPHTHA.—This is a special preparation of the natural sulphuretted, arsenical tar, contained in the St. Boès water, concentrated and solidified in Granules, of which three will suffice to alleviate the most obstinate cough.

(Loire, France.) SAINT GALMIER. (Altitude 1350 ft.)

This water is useful in cases of dyspepsia, as it not only assists digestion but also increases the appetite. Its refreshing and invigorating properties have made it the most popular natural mineral table water in France. Indeed it may justly be ranked as one of the best known waters for table use, and for admixture with wine, which it in no way affects.

DOSE.—Being a table water, it may be drunk *ad lib.*

Analysis of the "Badoit" Spring in Grains per Gallon.

1. SOLIDS.	Bicarbonate of Soda	39·20 grains
	,, Potash	1·40 ,,
	,, Lime ,, Magnesia	100·80 ,,
	Sulphate of Soda ,, Lime	14·00 ,,
	Silicate of Alumina	9·38 ,,
	Chloride of Magnesium	33·60 ,,
		198·38 grains
2. GASES.	Free Carbonic Acid Gas	1¼ volumes per volume

SAINT GALMIER-NOËL.

The GRANDE SOURCE NOËL is reputed to be the most highly impregnated with free carbonic acid of the St. Galmier waters, containing two volumes of that gas in one volume of the water, in its natural state, in which condition it is carefully bottled (being taken direct from the spring at a depth of 100 feet) by means of special patented apparatus, so as to preserve its natural limpidity, purity, and sparkling condition. It is a richly gaseous acidulated water, of the density of 1·022, eminently digestible, temperative, and slightly laxative. One of the very best of table waters.

The chemical composition of the St. Galmier Noël water is shown by the following analysis, made by M. Clouet, Professor of the Ecole de Médecine at Rouen.

	Grains per gallon.
Bicarbonate of Soda	21·00
,, Lime	46·90
,, Magnesia	25·55
Sulphate of Soda	8·40
,, Lime	4·97
Chloride of Sodium	4·62
Silica, Manganese, Strontia	traces
Iron	2·10
Total solid constituents	113.54

pper Savoy, France.) SAINT-GERVAIS.

he public vehicles, by which the service of communication between Geneva and mouni is carried on, call at the Thermal Establishment of Saint-Gervais.

he establishment comprises bath-rooms, douches, inhalation, pulverisation, and mplete hydrotherapeutic course.

Therapeutic Properties of the Saint-Gervais Waters.

he waters of Saint-Gervais are at the same time slightly sulphurous and chlorohated. Their mineralisation—which is rather high, 35 grains per gallon—is ly due to chloride of sodium, sulphate of soda, and sulphate of lime. This com- tion indicates their laxative qualities. But they are also digestive waters—a perty due to the presence of carbonic acid and of bicarbonate of lime.

he Saint-Gervais waters are employed both for external application and internal One of the springs (Torrent) contains sulphide of calcium, so that it is possible egulate at will the use of the sulphur constituent.

he therapeutic specialisations of the Saint-Gervais waters are chiefly, though not usively, directed to the treatment of certain cutaneous diseases and particular ctions of the alimentary canal, namely atonic dyspepsia, and dyspepsia coincident habitual constipation. The superiority of the treatment by the Saint-Gervais ers is more specially manifest in the case of skin diseases, assuming an inflamma- form, which, for that very reason, are aggravated by the use of strongly hurous (sodic) waters. The temperature of these waters enables them to be used remedy for sub-acute eczema, which is so intractable to our ordinary remedies, which one is afraid to treat with the aid of mineral waters. On account of the tive and dietetic properties of these waters, and their medium temperature, as as of the great quantity of glairine which they contain, their use does not engen- those symptoms of irritation which result from the use of other waters. Their iency is quite as great, even when the eczema has become chronic. On this point fessor Hardy expresses the following opinion: —* "In eczema, when the period ecretion is too prolonged, and the crusts are continually renewed by intermitten vths, at short intervals, we may seek to accelerate the cure by mineral waters. , in that case, care must be taken to avoid the use of mineral waters too highly ged with salts of sulphur, as well as of waters which are too warm; inasmuch as waters infallibly augment the intensity, extent, and duration of the malady. At stage to which I refer, the waters which are to be placed in the very first rank certainly those of Saint-Gervais. Of a low temperature, diuretic, diaphoretic, htly purgative, and containing only a small proportion of sulphur, these waters are ectly suited to eczema, when it has already, for several months, pursued a chronic rse, without having arrived at the stage of complete siccity. They are equally able when eczema has attained the final stage, and assumed the squamous or noid form. In the case of nervous, gastralgic persons, I have very often to gratulate myself on the beneficial effect of these waters in effecting and establish- a cure."

pper Engadine, Switzerland.) SAINT MORITZ. (Altitude 5910 ft.)

his bath is the highest in Europe. It has a low temperature and is very gaseous. springs are three in number, of which the Paracelse is most generally used. The er is acid and bitter, and has a slightly chalybeate character. It promotes digestion the action of the bowels when inactivity arises from want of tone. It increases renal secretions, and imparts a degree of vigour to the system. It is very useful cases of general debility when unconnected with the existence of organic ase.

OSE.—Commence with half-a-glass and increase to three or four glasses daily. hould be taken before breakfast and luncheon.

Encyclopædic Dictionary of Medical Science; Article *Eczema*, p. 421.

Analysis of the "Paracelse" Spring, according to Planta and Kekurle, in grains per gallon.

		Grains.
1. SOLIDS.	Bicarbonate of Lime	89·824
	" Magnesia	16·884
	" Iron	3·178
	" Manganese	0·413
	" Soda	20·545
	Sulphate of "	24·367
	" Potash	1·435
	Chloride of Sodium	2·828
	Silicic Acid	3·465
	Phosphoric Acid	0·042
	Alumina	0·028
		163·009

(Jura, France.) SALINS LES BAINS. (Altitude 1054 ft.)

Sodio-chlorinated Waters.

The Springs of Salins issue at a temperature of from 10° to 12° C. (50° to 54° Fahr.). They contain, in grains per gallon, the following solid constituents :—

Iodide of Sodium	Trace.	
Bromide of Potassium	2·1455	grains.
Chloride of Potassium	17·9634	"
" Magnesium	60·9084	"
Carbonate of Lime	Trace.	
" Magnesia	Trace.	
Sulphate of Lime	99·1662	"
" Potash	47·6560	"
Chloride of Sodium	1592·1605	"

That is to say, a little more than 1820 grains per gallon.

The Establishment at Salins, which is open from May 15th to September 30th, contains 45 bath-rooms, 6 ordinary, and 4 Scotch douche rooms, as well as a fine *piscine* (or public bath) where the water is constantly renewed; and lastly, a complete set of hydrotherapeutical apparatus and appliances.

The Springs of Salins-les-Bains hold one of the first places in the list of waters of the sodio chlorinated group. Their mineralisation is indeed so rich, that these waters are almost exclusively utilised for external treatment. The specialisation of the Salins waters, says M. Durand-Fardel, in his *Traité des Eaux Minérales*, is perfectly well defined. They are employed for the various manifestations of scrofula, and more particularly for those which are deeply seated, glandular, cellular, osseous, and articular. The treatment by the Salins waters represents an alterative, restorative, and resolvent medication of a very energetic kind. In this respect the water gives remarkable results in the treatment of ganglionic congestions, obstructions of the liver, of the spleen, and of the womb ; also of catarrhs developed under the influence of scrofulous diathesis, chronic choryza, ozena, otorrhea, etc. ; and of all scrofulous and articular affections dependent upon scrofula or tertiary syphilis. In short, the medicinal use of the Salins waters possesses the same therapeutic attributes that appertain to those of Kreuznach and Nauheim, which have for a long time past appeared to have a virtual monopoly of those important properties.

The treatment of all the above-named diseases can be carried on at home, by employing the mineral salts of the parent-waters, which are prepared and exported directly from ~~the Springs, in~~ bottles containing half-a-litre (500 grammes).

Those salts are the natural, unmanufactured product of the desiccation of the parent waters, resulting from the preparation of the salt in the local salt-works. This product contains, in an extreme degree of concentration, all the characteristic properties of the brine and Mineral waters of Salins.

S.A.) SARATOGA.

ere are about a dozen springs which are used on the spot for drinking purposes. ' Congress" and the " A " springs are bottled for export. The water is alterative ontains in a small degree iodides and bromides, and is useful in cases of glandular isceral obstructions, in diseases of the skin, tendency to scrofula, and disorders g from a torpid condition of the vessels connected with the formation of chyle.

SE.—From one to two bottles daily.

following Analysis of the principal Saratoga Spring (Saline), Professor C. F. Chandler, shows its mineral constituents, in grains per gallon ; Temperature 52° (Fahr.).

	Congress.	
Chloride of Sodium	60·0660	Grains.
„ Potassium	1·2072	„
Bromide of Sodium	1·2828	„
Iodide of Sodium	0·0204	„
Bicarbonate of Lime	14·9388	„
„ Magnesia	10·8228	„
„ Soda	1·1208	„
„ Lithia	0·4488	„
„ Baryta	0·1140	„
„ Strontia	Trace.	
„ Protoxide of Iron	0·0372	„
Sulphate of Potash	0·1332	„
Phosphate of Soda	0·0024	„
Silica	0·1260	„
Alumina	Trace.	
Organic Matter	Trace.	
Total Solid Constituents	90·3204	Grains.
Carbonic Acid Gas (free) cubic inches	58·8	

lar-am-Hartz, Germany). SAUERBRUNNEN.

NATURAL MINERAL WATER OF THE HARTZ MOUNTAINS.

Sophien-Quelle, at Goslar-am-Hartz, is a natural mineral table-water of excellent , unsurpassed by any of those yet known and most popular ; it is pure, soft, m all abnormal organic or inorganic elements, and of a most agreeable flavour. ulates the appetite and promotes digestion, producing itself no troublesome on the stomach, though taken in large quantities. It is inodorous and of normal n.

roperties have been examined, and its beneficial action is vouched for, by the minent authorities: Dr. R. Fresenius, Professor at Wiesbaden, Dr. Skaliveit, College of Hygiene, Hanover, Dr. John Attfield, London, Professor of Practical try to the Pharmaceutical Society of Great Britain, the well known author of al of Chemistry and of a handbook of water supplies.

water of the Sophien Spring is particularly adapted for use in tropical countries, pure potable water is a hygienic necessity for Europeans, who frequently rom disease, resulting in death, engendered by drinking impure and unwhole- ater.

ubjoined Analysis of the Sauerbrunnen Sophien-Quelle shows the mineral constituents in grains per gallon.

Chloride of Sodium	·20699
„ Potassium	·25578
Sulphate of Magnesia	·73157
Bicarbonate of „	·92610
Silica	·62300
Total solid Constituents	2·74344

(Nassau.) SCHWALBACH. (Altitude 909 ft.)

The waters of two of the springs are imported into England, viz., the "Weinbrunnen" and the "Stahlbrunnen." As chalybeates they are invaluable in cases of debility, or in improving the condition of the blood, especially when the latter is in an impoverished state, indicated by the partial absence of red globules.

DOSE.—Two or three small tumblersful daily, either pure or mixed with milk or wine.

Analysis according to Fresenius in grains per gallon.

		Stahlbrunnen. Grains.	Weinbrunnen. Grains.
1. SOLIDS.	Bicarbonate of Protoxide of Iron	5·144	3·544
	„ „ Manganese	1·128	0·560
	„ Soda	1·264	15·072
	„ Lime	13·600	35·152
	„ Magnesia	13·040	35·736
	Chloride of Sodium	0·416	0·528
	Sulphate of Soda	0·488	0·384
	„ Potash	0·232	0·456
	Silica	1·968	2·856
	Phosphate of Soda, Borate of Soda, and Organic matter	Traces	Traces
		37·280	94·288
		Cub. Ins.	Cub. Ins.
2. GASES.	Free Carbonic Acid	402·160	364·800
	Sulphuretted Hydrogen	0·024	0·024

(Ober-Selters, Nassau.) SELTERS. (Altitude 800 ft.)

The Ober-Selters Spring, which is closely allied to the hitherto better known Nieder-Selters, had, previously to the year 1870, been long disused; but nevertheless, in former times, and down to 1794, it had a special reputation of its own, and it has, since 1870, been reopened and restored, by special works undertaken for the purpose. This spring yields a water very similar to the Nieder-Selters Water. When freshly drawn from the spring, it is clear and colourless; but under the action of atmospheric oxygen it assumes a faint opal tint, by the conversion and precipitation of the small quantity of the bicarbonate of protoxide of iron which it contains. This being almost entirely insoluble, there remains in the bottled water an inappreciable quantity of that salt. The water has a most agreeable, fresh and piquant flavour. Its natural temperature is about 53° Fahrenheit.

The water of this spring is used exclusively for bottling, and is largely exported. As a table water it is superior even to that of the kindred spring at Nieder-Selters close by.

The medicinal use of the water is very extensive; it is beneficial for acidity of the digestive organs, diseases of the kidneys, bladder, liver and lungs, bronchitis, gout, rheumatism, and all diseases in which the use of an alkaline water is indicated.

DOSE.—Half a tumbler to a tumblerful before breakfast. The water may also e used for mixing with wine, spirits, or milk as a beverage for table use.

ent Chemical Composition, by Analysis according to Dr. Mohr, in grains per gallon.

SOLIDS.	Bicarbonate of Soda	58·4976	Grains.
	,, Ammonia	0·2919	,,
	,, Baryta	0·0084	,,
	,, Strontia	0·0469	,,
	,, Lime	17·2550	,,
	,, Magnesia	14·2100	,,
	,, Protoxide of Iron	0·3248	,,
	,, ,, Manganese	trace	,,
	Chloride of Sodium	0·0294	,,
	Sulphate of Potash	163·0860	,,
	Silicic Acid	3·6890	,,
	Alumina, Phosphoric Acid, Nitrous Acid, Boric Acid, Arsenious Acid, and Bromine	2·9400	,,
	Total solid Constituents	260·3790	grains.
GASES.	Carbonic Acid (parts by volume in 100)	91·2	
	Nitrogen	7·9	
	Oxygen	0·9	
		100·0	

ium.) SPA. (Altitude 1030 ft.)

ry favourite resort, beautifully situated. The water is ferruginous and exten-
prescribed for debility and weakness of the organs. As an alkaline tonic it is
in its action upon the bowels and kidneys, and for debilitated constitutions.
so very efficacious in certain disorders of youth. The original "Pouhon"
being required for the use of visitors, the "Pouhon du Prince de Condé," (of
identical mineral constituents), is now bottled for exportation.
E.—One to four tumblersful daily, according to circumstances.

Analysis according to Struve in grains to the gallon.

SOLIDS.	Bicarbonate of Protoxide of Iron	3·75	Grains.
	,, ,, Manganese	0·52	,,
	,, Soda	7·38	,,
	,, Lime	9·86	,,
	,, Magnesia	11·23	,,
	Sulphate of Potash	0·79	,,
	,, Soda	0·38	,,
	Chloride of Sodium	4·50	,,
	Phosphate of Lime	50·14	,,
	,, Alumina	0·09	,,
	Silica	4·99	,,
		93·63	Grains.
GASES.	Carbonic Acid	216·0	Cub. Ins.

"Pouhon du Prince de Condé," yields an alkaline bicarbonated and ferruginous
temperature 10° C. (50° Fahr.).

water, when analysed, gives the following proportions per gallon.

Alkaline Bicarbonates	6·93	Grains.
Bicarbonate of Lime	7·70	
,, Magnesia	7·00	,,
Chloride of Sodium	1·75	,
Alkaline Sulphates	1·40	,,
Peroxide of Iron	8·33	,,
Silica	3·50	,,
	36·61	Grains.
Carbonic Acid (free)	7·00	,,

This is a cold mixed bicarbonated water—that is to say, its bases are sodic, magnesic and calcic—which endows it with notable gaseous qualities and special digestive properties. The carbonic acid exists therein to excess, both free and in a state of combination. The analyses made at the springs give its proportion as 7 grains per gallon. But its speciality arises from the iron which it contains. It is a ferruginous mineral water of the first class.

The greater part of ferruginous waters, properly so-called, are waters chiefly with calcic bases, and consequently unstable. It is a very moderate estimate to assume that the proportion of protoxide of iron, which forms a deposit on the sides of the bottle, *i.e.*, which is lost for use, amounts to about one half, or 50 per cent.

But the *Prince de Condé* water offers this remarkable feature, viz., that, even after several months in bottle, its iron still remains perfectly dissolved, that is to say, without doubt, in the form of bicarbonate; and not the smallest particle of it is deposited on the sides of the bottle.

The percentage of peroxide of iron (0·119) assigned to this water by the analysis of the *Académie de Médecine*, is perceptibly similar to that attributed by the same authority to the Orezza water, viz., 0·128 of carbonate of iron; the difference being only 9 milligrames. Particular notice is due to the superiority, in point of preservation, which is the distinctive characteristic of this spring at Spa.

The application of ferruginous waters in general, and in particular the special virtues of the *Prince de Condé* water, are so well-known that it is unnecessary to dwell upon them.

It will suffice simply to quote the uses of the Spa waters, as specified by Dr. Scheller in his exhaustive work on this station. These applications relate to chlorosis and anemia.

Among the different kinds of chlorosis, Dr. Scheuer named those of puberty, of pregnancy, of menorrhagia, of hysteria, of articular rheumatism and of chorea.

Among the various kinds of anemia, he distinguishes the following: respiratory and hæmorrhagic anemia; secretory and excretory anemia, resulting from lactation, from bronchial catarrh (bronchorrhœa), from diarrhœa, from chronic cystitis, from spermatorrhœa, &c. Anemia from privation, nervous exhaustion; besides scrofulous, paludal, and convalescent anemia, &c.

(England.) SULIS.

The Sulis Water is the natural mineral water of Bath, except that the spring water is aerated with carbonic acid gas. It is an excellent tonic and table water, and combines perfectly with wine, spirits, milk, pure syrup, lime-juice, &c.

Sulis water imparts strength and tone to the digestive organs, and vigour to the mental faculties. It is valuable for persons subject to morning sickness induced by irritation of the mucous membrane, temporary or chronic indigestion, or symptoms resulting from general debility of the stomach, and catarrhal affections arising therefrom.

The following analysis by Dr. Jno. Attfield, F.I.C., F.R.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, indicates its composition, and the proportions of its solid constituents in grains per gallon.

	Natural.	Aërated.
Bicarbonate of Lime	7·84	7·65
Sulphate of "	94·11	95·07
Nitrate of "	0·56	0·60
Bicarbonate of Magnesia	0·56	0·47
Chloride of Magnesium	15·24	15·02
Chloride of Sodium	15·16	15·38
Sulphate of Soda	23·14	23·85
" Potash	6·70	6·90
Nitrate of Ammonia	1·06	0·90
Bicarbonate of Protoxide of Iron	1·22	1·15
Silica	2·71	2·61
Total Solid Constituents	168·30	169·60

zerland.) TARASP. (Altitude 4600 ft.)

e are several springs, of which the principal is the St. Lucius, which is one ichest in saline principles known. The water is efficacious in general obesity, of the stomach, enlarged liver and spleen, and a great many other affections; which, chronic bronchial catarrh and laryngitis hold the first place. It is ly suited to the various forms of gastric catarrh and gastralgia, in inactive n with distension, and uneasy sensations in the epigastric region.

E.—About a pint daily, to be taken before dinner; commencing with a ful before breakfast. The water may be mixed with a little warm milk if y.

nalysis according to Von Planta in grains per gallon.

SOLIDS.	Sulphate of Soda	165·47	Grains
	Carbonate of ,,	272·29	,,
	Chloride of Sodium	294·01	,,
	Carbonate of Magnesia	50·76	,,
	,, Protoxide of Iron	1·52	,,
	,, Lime	124·32	,,
	Iodide of Sodium	15·36	,,
	Sulphate of Potash	29·98	,,
	Silica	2·47	,,
	Phosphoric Acid	0·02	,,
	Alumina	0·02	,,
	Fluoride of Manganese	Traces	
		956·22	Grains.
ASES.	Carbonic Acid	348·87	Grains.

ses which ascend from the springs consist of—

	Per Cent.
Carbonic Acid	99·34
Nitrogen	0·43
Oxygen	0·23
	100·00

any.) TAUNUS. (Altitude 390 ft.)

ring is situated at a short distance from Frankfort-on-Main.

—Being a table water, may be drunk *ad lib.*

Analysis according to Taylor, in grains per gallon.

IDS.	Chloride of Sodium	179·94	Grains.
	,, Potassium	18·90	,,
	Bicarbonate of Lime	95·90	,,
	,, Magnesia	12·32	,,
	,, Soda	1·40	,,
	Sulphate of Lime	4·06	,,
	Silica	traces.	
	Alumina	traces.	
	Phosphate of Lime	traces.	
		312·52	,,
	Carbonic Acid, compressed	202·58	
	,, by estimate, in solution	121·45	
		324·03	

(Ardèche, France.) VALS. (Altitude 2475 ft.)

The waters are alkaline, and are very useful in all affections of the kidneys, bladder, &c. There are numerous springs, of which, up to a recent period, the following were best known and most familiarly used, viz. Magdeleine, Précieuse, Désirée, Rigolette, St. Jean, and Dominique. But, more recently, several other springs, or groups of springs, of which the waters are characterised by a graduating and ascending scale of mineralisation, have come into good repute. These are the Sources Vivaraises.

MAGDELEINE.—Useful in correcting excessive acidity of the secretions, gastralgia, diabetes, gout, rheumatism, albuminuria, and in nervous disorders.

PRÉCIEUSE.—Is very gaseous, and strongly recommended in obstructions of the liver, spleen and intestines, gall stones, jaundice, &c.

DÉSIRÉE.—Prescribed for diseases of the urinary organs, kidneys, bladder, &c.

DOMINIQUE.—This spring is sulphurous, ferruginous and arsenical, and is especially useful in pulmonary affections, chlorosis, anæmia, and a debilitated condition of the system. It is employed with success in skin diseases, especially of a scrofulous or syphilitic nature, and in intermittent fevers.

RIGOLETTE.—Contains iron and is useful in cases of debility arising from an impoverished condition of the blood, hysteria, and affections arising from weakness or irritability of the nervous system.

SAINT-JEAN.—This water is feebly mineralised, and may be used as a table water It assists digestion, promotes a healthy condition of the digestive organs, and is specially adapted for weakly patients.

DOSE.—One bottle daily, commencing with half a tumbler before breakfast.

Analyses of the Springs, according to Ossian Henry, in Grains per Gallon.

1. SOLIDS.	**Magdeleine.**	**Précieuse.**	**Désirée**	**Rigolette.**	**St. Jean.**
Bicarbonate of Lime	36·40	44·10	39·97	18·13	21·700
" Magnesia	47·04	52·50	63·00	...	8·400
" Soda	509·60	415·80	422·80	406·00	103·600
" Potash	17·85	16·10	18·41	18·41	2·800
" Protoxide of Iron with traces of Magnesia	2·03	0·70	0·70	1·68	0·420
Chlorides of Sodium and Potassium	1·12	5·60	77·00	84·00	4·200
Sulphate of Soda	17·71	12·95	14·00	15·40	3·780
" Lime	17·71	12·95	14·00	15·40	4·900
Alumina	6·79	4·20	4·06	4·20	0·770
	656·25	564·90	653·94	563·22	150·570
2. GASES. Carbonic Acid, uncombd.	143·50	155·26	150·15	146·65	29·700

"Dominique" Spring, Grains per Gallon.

Sulphuric Acid	122·5
Arsenious Acid	
Sesquioxide of Iron	
Lime and Soda	
Silicic Acid	
Chlorine	
Phosphoric Acid	
Organic Matter	

Sulphuric Acid		91·0
Silicate	Sesquioxide of Iron	30·8
Arseniate		
Phosphate		
Sulphate		
Sulphate of Lime		
Chloride of Sodium		
Organic Matter		
		121·8

SOURCES VIVARAISES.

from all the numerous springs which are to be found at Vals, concentrated
contracted area—of which some are of old and legitimate celebrity, while
re but just becoming or have yet to become known—there is an isolated
etached from the rest, which alone reproduces in itself all the varieties of
ation that distinguish the waters of this station, and give them their typical
. Those springs are the Vivaraises; which are distinguished the one from
, by a simple numerical designation, based on their degree of mineralisation.
thus known as Vivaraises, 1, 3, 5, 7, 9. The following table, reproducing
ses made by M. Glénard, the learned Professor of Chemistry at the Faculté de
of Lyon, indicates plainly the mineralisation of the Sources Vivaraises, in
scale:—

	Sources Vivaraises.				
uents in 1 gallon.	No. 1. Grains.	No 2. Grains.	No. 3. Grains.	No. 4. Grains.	No. 5 Grains
te of Soda	1·9760	3·1735	4·0767	6·3938	7·2237
Potash	„	0·0110	0·1291	0·1900	0·2100
Lime	0·0676	0·1580	0·2020	0·2380	0·2915
Magnesia	0·0595	0·1286	0·4260	0·2630	0·2584
Protoxide of Iron	0·0547	0·0048	0·0240	0·0112	0·0220
Lithia	0·0106	0·0200	0·0175	0·0238	0·0190
of Sodium	0·0656	0·1100	0·0436	0·0770	0·0916
Potassium	„	0·1400	„	„	„
of Soda	0·2701	„	0·0191	0·0298	0·0344
Potash	„	0·0210	„	„	„
Lime	0·2157	0·0760	0·0231	0·0365	„
Silicates	0·0700	„	0·0557	0·0866	0·1022
of Alumina	„	„	„	0·0996	„
odides	„	„	0·0317	„	„
of Soda	„	„	0·0820	„	„
cid (free)	1·2844	1·6041	1·6141	1·6771	1·4343
	4·0742	5·4470	6·7446	9·1254	9·6871

be seen, the numerical classification of these springs corresponds approxi-
n the degree of mineralisation (in respect of the most important element, sodic-
); so that, for medical prescription, no confusion between them is possible.
object sought to be attained is an alterative or diathesic medication,
ust be had to the strongly mineralised springs, *i.e.* to Vivaraises No. 5, 7 or
ot, however, necessary in all cases to adhere to the strongest springs, and
e but highest proportions of bicarbonate of soda. Most frequently springs
7 will suffice. But it will be expedient in reality to avail oneself of those
ive elements which are the most characteristic of an alterative medicament.
specially be the case in gout, gravel and diabetes, when those states or
espectively the chief object of the treatment.
definite diseases are in question, such as the various forms of dyspepsia,
the liver or renal affections, in short, conditions of acute pain, allied with
gain catarrhal affections of the urinary passages, from pyelitis to cystitis,
oper to proportion the degree of mineralisation to the degree of irritability
affected. In a case of simple and painless obstruction of the liver, recourse
ad to springs of a high degree of mineralisation. In the case of hepatic
ling as they are more or less frequent and acute, Vivaraises No. 1 and 3
d, and their standard of mineralisation must in such cases by no means be
The weaker springs are in general most suitable for all forms of dyspepsia.
other hand, the stronger springs will be prescribed in vesical catarrh.
, there is no single application of the sodic bicarbonated Springs of Vals,
Vivaraises Springs are not equally appropriate, as they are perfectly re
of all the characteristic properties of the waters of that station. Their
cale of mineralisation permits their adaptation to every prescription,
ting an energetic medicament or one of a milder degree of strength.

(Allier, France.) VICHY. (Altitude 733 ft.)

The Thermal Establishment of Vichy is situated at the foot of the Auvergne mountains, in a charming valley, and is a favourite resort of invalids afflicted with rheumatism, gout, and diseases of the urinary organs. There are several springs, of which those described below are the principal. The springs are the property of the State, and the waters are bottled under the supervision of officials appointed by the French Government, so that there is an absolute guarantee of their purity and natural condition.

There are other springs in the neighbourhood of Vichy possessing mineral properties, but they are of minor importance, and have no distinctive character.

GRANDE-GRILLE—so named from the iron railing by which it is surrounded—possesses very active properties and is administered with success in lymphatic affections, disorders of the digestive organs, congestions of the liver and spleen, visceral obstruction, biliary calculi, gravel, etc.

CELESTINS is prescribed for affections of the kidneys and bladder, for gravel, urinary calculi, gout, rheumatism and diabetes. It is agreeable to the taste, but rather exciting, and is not suitable for nervous or irritable persons, or hysterical females subject to spasms, etc.

HAUTERIVE is situated about four miles from Vichy, at a village from which it derives its name, and with the exception of a slight difference in the temperature, the water strongly resembles that of the Celestins spring, and is prescribed for the same class of diseases.

MESDAMES is ferruginous, alkaline, and gaseous, and is chiefly useful for weak and debilitated constitutions, convalescents, fever patients, chlorotic and lymphatic persons, etc.

HÔPITAL resembles Grande-Grille, but is less stimulating and more suited to patients who are delicate, impressionable, nervous or disposed to congestion and hæmorrhagia. It acts principally in affections of the digestive organs.

PARC resembles the Hauterive spring.

GRAND-PUITS CARRÉ and PETIT-PUITS are chiefly used on the spot for bath service, and are not exported.

DOSE.—The quantity to be drunk daily should be indicated by the medical attendant, and the selection of the spring must be decided by the same competent authority. About a tumblerful or less may also be taken before breakfast; the Celestins, Hauterive and Parc may also be taken as a beverage, and in this way as much as a bottle may be drunk during the day, but, unless in special cases, it is not advisable to exceed this quantity.

The Mineral Salts of Vichy are prepared in several forms, viz., for use as baths, and for drinking, also as lozenges, as a corrective of acidity, and a help digestion. A very pleasing form as Barley Sugar (Sucre d'Orge) is very useful for children and also for adults if preferred.

DIGESTIVE PASTILLES

OF THE VICHY THERMAL ESTABLISHMENT.

The Vichy lozenges are sold everywhere. This digestive enjoys a daily-increasing reputation. But the Public must be cautioned against the numerous counterfeits that are prepared; these are imitations, and quite spurious.

The reputation of the Vichy lozenges of the Thermal Establishment is justified by their efficacy in cases of difficult, slow and painful digestion.

ey are useful. 1st : To those who, after a meal, feel a sort of weight upon their ach (atonic dyspepsia). 2nd. To those whose digestion is accompanied by a opment of gases (flatulent dyspepsia). 3rd. To persons, usually in sound health, emporarily affected with accidental digestive pains.

DOSE.—4, 5 or 6 should be taken before meals, and occasionally, as required.

SALTS FOR VICHY-BATHS
At Home.

e evaporisation of the Vichy waters and the extraction of their native salts, h to all appearance an easy process, is nevertheless a work requiring great care. peration is carried on at all periods of the year, at the springs themselves, under es of the public. The mineral waters attain by degrees a sufficient density, the salts in solution are deposited by crystallisation. When collected and dried, are submitted to a current of carbonic acid gas issuing from the springs, and being put into a stove properly warmed, they are pulverised, sifted, &c., before sold to the Public.

se Vichy salts are employed in the form of baths, simultaneously with the use natural mineral water as a beverage, and may, under medical attendance, render service, though a treatment at the springs is certainly preferable.

Public are cautioned against all the like products not bearing the Stamp of the agnie Fermière de Vichy, and especially against all imitations and counterfeits.

Vichy water salts for use at home are sold in packets. Each packet contains pound of salts, that is, the same quantity as a bath taken in the Establish- It is only necessary to throw the salts into the water of the bath, when it is nd they are immediately dissolved.

Analyses of the Springs belonging to the State.

Quantities of Saline Ingredients contained in grains per gallon.

	Grande Grille.	Celestins.	Hauterive.	Mesdames.	Hôpital.	Parc.
arbonic Acid	63·56	73·43	152·81	133·56	74·69	108·85
of Soda	341·81	357·21	328·09	281·12	352·03	339·99
of Potash	24·64	22·05	13·23	13·23	30·80	20·44
of Magnesia	21·21	22·96	35·07	29·75	14·00	14·91
of Strontia	21·21	0·35	0·21	0·21	0·35	0·35
of Lime...............	30·38	32·34	30·24	42·28	39·90	42·98
of Protox. of Iron	0·28	0·28	1·19	1·82	0·28	0·28
e of Soda	20·37	20·37	20·37	19·50	20·37	21·98
te of Soda	9·10	6·37	3·22	...	3·22	9·80
te of Soda	0·14	0·14	0·14	0·21	0·14	·14
of Sodium	37·38	37·38	37·38	24·85	36·26	38·50
....	4·90	4·20	4·97	2·24	3·50	3·85
Totals.........	574·98	577·08	626·92	546·77	575·54	602·07

Acids and Bases contained in grains per gallon.

	Grande Grille.	Celestins.	Hauterive.	Mesdames.	Hôpital.	Parc.
Acid	309·26	329·35	394·80	352·03	330·33	354·97
c Acid	11·48	11·48	11·48	9·87	11·48	12·39
ric Acid...............	4·90	3·50	1·75	...	1·75	5·32
s Acid	0·07	0·07	0·07	0.14	0.07	0·07
loric Acid............	23·38	16·38	23·38	15·54	22·68	24·08
....	4·90	4·20	4·97	2·24	8·50	3·85
of Iron	0·14	0·14	6·16	0·84	0·14	0·14
....	11·83	11·20	11·76	16·45	15·54	16·73
....	0·21	0·21	0·14	0·21	0·21	0·21
....	6·79	7·35	11·20	9·52	4·48	4·76
....	12·74	11·41	6·86	6·86	15·96	10·57
....	174·16	179·20	165·76	136·99	175·00	175·00
Totals.........	559·86	574·49	638·33	550·69	581·14	608·09

SOURCE LARBAUD.

Alkaline Sodio-bicarbonated Water. Temperature 15°C. (59° Fahr.)

The analysis of the SOURCE LARBAUD, made by M. Ossian Henry, gave the subjoined results, in grains per gallon :—

Carbonic Acid	92·40	grains.
Bicarbonate of Soda	341·60	„
„ Potash	15·40	„
„ Lime	16·66	„
„ Magnesia	13·30	„
„ Lithia	perceptible trace	„
„ Protoxide of Iron	1·61	„
„ Manganese	very slight trace	„
Sulphates of Soda and Lime	7·00	„
Chlorides of Sodium and Calcium	21·00	„
Nitrates	slight trace	
Iodine and Bromine	perceptible trace	
Arseniates	„	„
Phosphates	„	„
Silicic Acid, Silicate, and Organic matter	4·20	grains.
Total...	513·17	„

The water of the Larbaud Spring is rich in carbonic acid, and consequently of easy digestion. From the results of analyses that have been made, it appears that, when exported, it retains all the natural elements of the Vichy waters.

"The water of the Larbaud Spring," says M. Ossian Henry, in his admirable report to the *Académie de Médecine*, "is rich in mineralising elements. It contains a high proportion of free carbonic acid, of alkaline bicarbonates, and of protoxide of iron, of which the greater part remains in solution in the water. The carbonic acid contained in the water, when bottled and exported under the best conditions, is nearly equal in quantity to that originally contained in the water as it issues from the Spring ; showing, conclusively, that it suffers no deterioration by transport. The very small quantity of insoluble salts which this water contains, in proportion to the abundance of the other constituents, assures its perfect limpidity, a property which, I am convinced, will be fully appreciated."

This water is used as a remedy for affections of the liver and spleen, vesical catarrh, chlorosis, gravel, calculus, diabetes, dyspepsia, gastro-enteritis, refractory fevers, gout, heaviness of the stomach, &c.

The Larbaud Spring is provided with a Thermal Establishment, very well fitted up, and comprising 33 bath-rooms, and 2 douche-rooms, of all kinds.

For particulars, apply to the Régisseur de la Source Larbaud, Boulevard des Celestins, Vichy, Allier, France.

SOURCE LARDY.

Sodio-Bicarbonated Ferruginous Waters.—Temperature 23·90 C. (75° Fahr.)

The waters of the Lardy Spring are sodio-bicarbonated, like all the other Vichy waters ; they contain 343·7 grains of that salt per gallon. Their use is prescribed i all affections of the stomach, dyspepsia, gastralgia, vomiting, anorexia, heaviness the stomach, etc. Their efficacy also extends to affections of the biliary ducts, suc as : chronic hepatitis, biliary calculus, obstruction of the liver, hypertrophic kyrrho (especially the early stages), gout and all affections of the urinary passages, uric-a diathesis, vesical catarrh, impoverishment of the blood, chlorosis (or pallor), protracted convalescence, adynamia, diabetes, articular rheumatism, acute and chronic.

The water of the Lardy Spring is also ferruginous, as it contains 1·96 grains protoxide of iron per gallon. It will be prescribed, by preference, wherever the stitution requires to be strengthened by iron, as frequently happens in the al affections. Its use cannot be too strongly recommended to contend against haic dyspepsia, so frequently accompanied by headache, and pains in the back mach.

analysis of the *Source Lardy*, made by M. Bouquet, Chemist, in 1874, gave the ng results, in grains per gallon:—

Carbonic Acid (free)	384·93	grains.
Sulphuric Acid	12·39	„
Phosphoric Acid	3·08	„
Arsenious Acid	0·14	„
Boric Acid	Trace	
Hydrochloric Acid	23·38	„
Silica	4·55	„
Protoxide of Iron	0·91	„
„ Manganese	Trace	
Lime	19·32	„
Strontia	0·21	„
Magnesia	5·32	„
Potash	19·11	„
Soda	174·02	„
Bituminous matter	Traces	
Total ...	647·36	grains.

ardy Spring is fitted up with a comfortable establishment for Baths and , comprising 30 bathrooms for men, and 20 for women; as well as with a of sulphurous baths, and cold, hot, Scotch, and ascending douches, etc.

Hydrotherapeutic Establishment has recently been added as an annexe to ing Thermal Establishment; visitors will find, in this new installation, every that can be desired.

ll particulars apply to the Régisseur de la Source Lardy, à Vichy, Allier.]

The Thermal Establishment of Vichy.

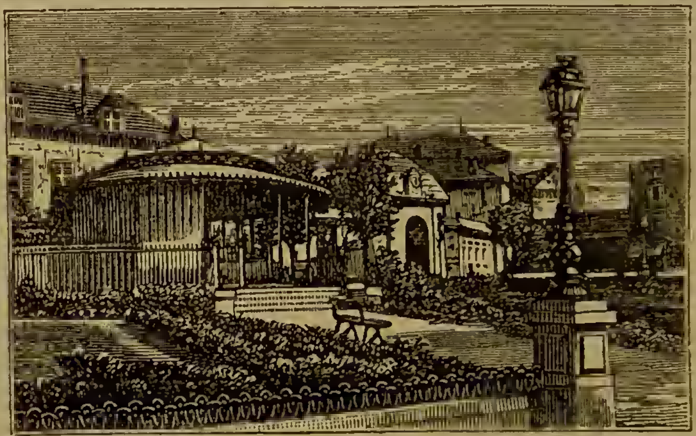
count of the number, importance, and therapeutical value of the Vichy as well as from the scale upon which this Thermal Establishment and its es are organised—no less than from the fact that, although rented and by the Compagnie Fermière de Vichy, the State, being of the proprietor of ngs, supervises and controls their management and direction—it may be with confidence that this is a typical first-class Thermal Establishment; for son the following general particulars and supplementary description of the springs will be found interesting.

GRANDE-GRILLE SPRING.

probably the most universally known and, consequently, the most used the Vichy thermo-mineral water basin. It is so called from an iron ich formerly surrounded it, and which recent arrangements have since superseded. It is situated in the Great Bathing Establishment, at one end of the Gallery of the Springs and, of all the Vichy wells, it is the best managed one. From a circular basin the agitated water bursts out, with the appearance of boiling: this is owing to the great pressure, and the large quantity of carbonic acid gas which it contains. The yield of this spring is enormous, as it is sufficient not only for drinking on the spot and exportation, but also for the baths.

According to the scale of the increase in temperature in proportion to the depth of natural springs, as established for artesian wells, we may estimate at about 1,100 or 1,200 metres (3,600 to 4,000 feet), the depth of the Grande-Grille Spring; but most probably the depth is yet more considerable, and the water, after having been possessed of a very high temperature in the depths of the earth, comes to us cooled by its passage from that great depth. According to Bouquet, the origin of the spring lies beneath the lacustrine beds and is really of geological formation, like the superimposed crystalline rocks.

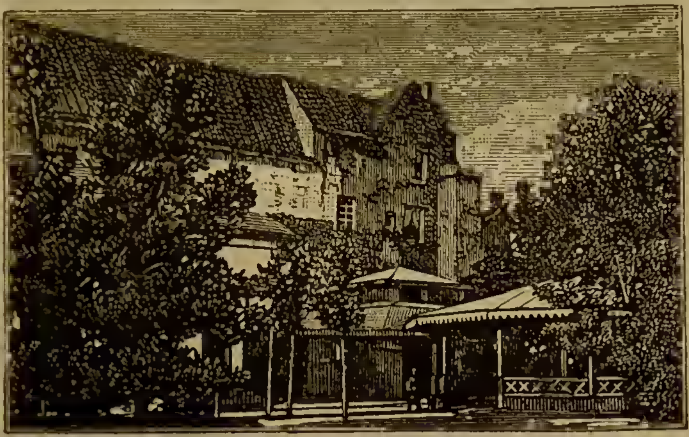
The *Grande-Grille* water contains 4·88 grammes of soda-bicarbonate in a bottle. It consequently proves very active. It does not affect the stomach too strongly, and most invalids take it without effort, and digest it without difficulty. It is particularly used for disorders of the liver, visceral obstructions, and especially hepatic colics accompanying biliary lithiasis. It, in the most extraordinary way, relieves these horrible sufferings. Invalids who suffer from almost daily attacks, leave Vichy, completely restored to health, after a three weeks' stay. Those who are less fortunate, that is, continued to be exposed to the various influences which cause their diseases, remain free from renewed attacks for long periods. They succeed in maintaining themselves in health, reconciling the necessities of both health and profession, by drinking exported water and renewing the alkaline treatment, every year or every alternate year.



HÔPITAL OR ROSALIE SPRING.

This spring is situated in front of the Civil Hospital. It rises in a large stone basin, protected by a wrought iron pavilion. It contains five grammes of soda-bicarbonate per bottle, and is abundant enough to supply with water the adjacent bathing house. Its temperature is 31° centigrade, and its yield is no less than 60,000 quarts within the four and twenty hours; it therefore, fully supplies not only local and foreign consumption, but also the baths and shower-baths of the Thermal Establishment. The green matter which is seen around the basin, seems to be a sediment occasioned by the *thermal-protoderma*, which certainly contributes to make the water soft and unctuous. This also explains why very susceptible stomachs do not digest it so easily as that of the Grande-Grille.

Disorders of the stomach and intestinal indigestion cause a large number of invalids to visit Vichy; these being the diseases commonly treated by the Hôpital water. Most generally gastralgia, in all its forms, derives relief from it. At the same time extremely nervous or debilitated persons may have recourse to *Mesdames* or *Lardy* spring, for the cure of obstinate gastralgia, such as appears in chlorotic patients, particularly at the period of puberty. It is easy to understand the importance of such a water, if we think of the part the digestive organs play in the economy of the human system. It strengthens weakened or injured constitutions, whatever may be the in consequence of which we daily see almost, so to say, the resurrection of s of both sexes whose stomachs cannot support the slightest food, and are y able to support nature and life ; yet, after a course of treatment by this water, lour of health re-appears on their faces and they grow rapidly strong and . There are almost no exceptions to this restoration. Unless the pepsine- of the stomach be destroyed, as sometimes happens with old people, an ement may most generally be relied upon.



CELESTINS SPRING.

springs of the *Celestins* took their name from a convent of the *Moines Celestins* formerly stood on this spot, and of which some remnants are still visible. are situated behind the old Vichy on the banks of the river, at the extremity of len which bears also the name of the convent. The springs burst out from the n of an enormous rock, and they are three in number, namely :—The *Old Spring*, eld of which is hardly 200 quarts per day ; the *Grotto Spring*, which yields twice as much ; and the *New Spring*, discovered in 1870 in the grounds recently to the State property, and the yield of which is 18,000 quarts a day.

re are, here, a sheltered gallery, a resting place, and a billiard-room. Fine trees, iful beds of flowers and meandering walks enhance the beauty of the site, which lly a fairy scene. The situation of the place, garden and avenue, is alike itful and charming.

water is very cold and gaseous; the gas, in small bubbles, adheres to the sides of eceptacle and effervesces on the surface when agitated. It is pleasant to the taste, on the spot and in other lands. It is one of the springs the water of which may nsported and used at a distance with the greatest advantage.

Celestins water is employed for the cure of uric-acid gravel and nephritic , gout, diabetes and chronic maladies of the genito-urinary organs in their early s. Invalids must use it prudently and moderately, on account of its energetic xciting properties ; this is the best way of securing its efficiency, and preventing ffects. This caution is by no means superfluous, inasmuch as people feel a ncy to misuse the cool and gaseous waters especially in hot weather. Danger is immediately perceived; but excess always proves hurtful to the patient. rience has long shown this to be a fact which demands the serious attention of ds.

HAUTERIVE.

is spring is situated at six kilometres distance, in a splendid park, and is only for exportation, as it best supports the longest journies. This arises from its osition and temperature. Cold springs retain the carbonic acid gas better than springs, and the degree of purity of the waters chiefly depends on the presence, cess, of this gas, which keeps the whole of their constituents in solution. The osition of the mineral water of Hauterive is similar to that of the Celestins, with all proportion of iron. The presence of bodies in suspension and small black cles, which may be perceived through the transparent bottles, is accounted for by recipitation of this ferruginous element. The bottle should not therefore be ted on this account, as its virtue is by no means impaired. In short the terive water is very suitable for use at a distance from Vichy.

PARK SPRING.

Facing the rue Prunelle, under the shade of the Park, in the most central part of Vichy, is the Park Spring, now almost disdained, in spite of its true and very precious curative virtues. It is, indeed, less cold and active than the Celestins, and more easily digested; it has a slight sulphurous taste. It perfectly suits the first period of the alkaline treatment, and advantageously replaces the Hôpital water whenever the case is one of gastric disorders of small importance and it is only necessary slightly to stimulate the stomach or digestive organs. We, in preference, recommend it for various cases of gravel with cystitis, when any excess over the prescribed doses might be attended with serious consequences. With this water there is no fear of causing a too great recrudescence or excitation. Its temperature is 22° Centigrade; and its yield 15,000 quarts in the four-and-twenty hours.

MESDAMES SPRING.

This spring issues just opposite the Grande-Grille, at the other end of the Gallery. It rises at a distance of two kilometres from the spot, in the *Allée Mesdames*, near the Cusset Road, and has been conveyed to the Bathing-house by pipes. The water, as it issues, is very cool and gaseous; it becomes a little warmer in its transit through the pipes; but its principal properties suffer no alteration.

The association of the soda bicarbonate with iron and arsenic, contained in this spring, makes it very proper for weakened constitutions, that require a strengthening and tonic treatment, viz; in cases of adynamia, chlorosis and general debility. It restores health to lymphatic females, suffering from immoderate discharges which slowly undermine the constitution. Its action upon the red gobules of the blood is manifest; the blood circulation grows more active, the breathing freer, and easier, and the flesh resumes its rosy tint—a certain proof of improvement. We are aware that iron ought only to be used in a moderate way, and under perfectly determined conditions; but this is the doctor's business. The same may be said as to the dose prescribed. Iron is necessary in the accomplishment of the mechanical acts of life; yet, if the organism receives more than is necessary, its presence is attended with congestion, hemorrhage, a feeling of plenitude, in short all the symptoms of vascular plethora. These facts are too well known to be overlooked and, we must say, ought not to be disregarded.

da-Pest, Hungary.) VICTORIA OFENER.

e Victoria Ofener Bitterwaters are remarkable for their high degree of alisation, and especially the large proportions of the sulphates of soda and esia, the latter in particular. Out of a total of 4063·843 grains per gallon of e solid constituents, no less than 2296·749 grains per gallon are sulphate of esia, and 1201·851 sulphate of soda; these two salts together making 3498·6 grains llon, or about 87 per cent. of the whole.

natural Bitter-water of the Victoria Ofener Spring, is in fact a natural fluid esia, and a powerful natural purgative. Great care is taken in the process of bottling ater at the springs, by means of special arrangements, to preserve the constant y of its chemical composition and natural aperient qualities.

SE.—For ordinary purgative purposes, half a wine-glassful may be taken at bed or a wine-glassful in the morning, fasting. It is most efficacious when warmed east 60° Fahr., or when an equal quantity of hot water is added to it.

s water is perfectly permanent, and bears transport and storage without change erioration. It is of high medicinal value for the treatment of imperfect digestion, al or temporary constipation, affections of the stomach and liver, and other r functional derangements; for inflammation and congestion of the brain, lungs, ilious attacks and attendant secondary evils; chronic diseases of the respiratory ., and defective blood circulation, stoppages of the blood in the hypogastric ; hæmorrhoids, cutaneous affections and pustules in the face; in rheumatic and disorders; organic diseases resulting from fatty degeneration, and general ; abnormal formation of uric acid concretions, and subsequent formation of and calculus in the kidneys and bladder; during pregnancy and in many diseases en; as also to remove the consequences of excess in diet, etc.

chemical composition of the Victoria Ofener Water, in grains per gallon, is by the subjoined analysis, by different analysts.

	Analysis of Prof. H. E. Roscoe, F.R.S., Owen's College, Manchester	Special Analysis of Prof. M. Ballo, Chemist of the City of Buda-Pest	Analysis of Dr. E. L. Ulex, Official Chemist of the City of Hamburg
lphate of Magnesia ...	2296·749	2266·600	2352·0
„ Soda	1201·851	1466·780	1368·5
„ Potash	30·849	21·735	89·6
„ Lime	163·128	112·140	93·1
loride of Sodium	123·956	157·017	159·6
arbonate of Soda	83·188	34·860	147·0
umina	0·756	1·603	21·0
ica	4·109	3·108	42·0
osphoric Acid	Trace	Trace	Trace
tal Soluble Solids	3904·586	4063·843	4272·8
Do. (found directly)	3900·750	4070·920	...
nperature (Fahr.)......	63°	59°	54°
ecific Gravity	1·0534	1·05362	1·055

au, Germany.) WIESBADEN. (Altitude 346 ft.)

spa possesses no less than twenty-three muriated thermal springs, of which the l is the Kochbrunnen. The water of this spring has a taste somewhat like broth, and is advantageously employed in almost all forms of gout, unless atory symptoms are present. It is very effective in gouty diseases of the contractions and anchylosis, also in chronic catarrh of the stomach and es, when occurring in gouty patients, and in the elimination of uric acid from d; also in promoting abdominal circulation. It is recommended in chronic tism, tic douloureux and sciatica, and in certain forms of paralysis. Women from paraplegia after parturition derive benefit from these waters, also from rheumatic palsy.

.—This water is prescribed in copious doses, from two to four tumblersful ually ordered. If intended to act chiefly on the kidneys, it must be drunk l at short intervals, but if a diaphoretic action is required, it must be taken a considerable amount of walking exercise is enjoined. This water should be der medical supervision.

Analysis of the "Kochbrunnen," according to Fresenius in grains per gallon.

1. SOLIDS.	Chloride of Sodium	524·9779	grains.
	„ Potassium	11·1974	„
	„ Lithium	0·0138	„
	„ Ammonium	91·2841	„
	„ Lime	36·1720	„
	„ Magnesium	15·6603	„
	Bromide of „	0·2760	„
	Iodide of „	traces	
	Sulphate of Lime	6·9289	„
	Phosphate of „	0·0299	„
	Arseniate of „	0·0115	„
	Carbonate of Baryta	traces	
	„ Strontia	traces	
	„ Lime	32·1055	„
	„ Magnesia	0·7979	„
	„ Protoxide of Iron	0·4339	„
	„ Manganese	0·0453	„
	Silica	4·6018	„
	Silicate of Alumina	0·0392	„
	Organic Matter	traces	
	Total Solids	724·5754	„
2. GASES.	Carbonic Acid	64·16	cub. inches.
	Nitrogen	1·03	„

(Waldeck.) WILDUNGEN. (Altitude 300 ft.)

Wildungen contains several springs, all of an earthy character. The two principal are the George-Victor-Quelle, and the Helenen-Quelle. The water has a special and well-deserved reputation for its curative powers in gravel and lithic diathesis. It is no solvent of renal calculi, nor of stone in the bladder, but it is a capital diuretic, and not only promotes the elimination of gravel and renal calculi, but by its tonic action on the mucous membrane of the urinary passages, serves to prevent the formation of fresh concrements. It is also much used for chronic catarrh of the bladder, neuralgia of the urethra and neck of the bladder, dysuria and ischuria, and incontinence of the urine.

DOSE.—Two or three tumblerfuls daily.

Analyses in grains per gallon.

		George-Victor-Quelle.		Helenen-Quelle.	
		By Fresenius	By Werner	By Fresenius	By Werner.
1. SOLIDS.	Sulphate of Lime	...	0·07	...	0·21
	„ Magnesia	...	7·56	...	9·10
	„ Soda	4·76	5·53	0·91	1·26
	„ Potash	0·70	·84	1·89	2·94
	Phosphate and Nitrate of Soda	...	traces	...	...
	Bicarbonate of Lime	49·84	50·61	88·83	91·00
	„ Magnesia	37·45	36·26	95·41	98·91
	„ Soda	4·48	4·76	59·15	64·05
	„ Protoxide of Iron	1·47	...	1·26	...
	„ Protoxide of Manganese	0·14	...	0·07	...
	„ Lithia	...	traces	...	traces
	Chloride of Sodium	0·49	0·70	73·0	82·11
	Silicic Acid	1·33	traces	2·17	...
	Total	100·66	106·33	322·70	349·58
2. GASES.	Free Carbonic Acid	175·56	164·36	178·22	169·74

au, Germany.) WILHELM'S-QUELLE.

spring is situated at Kronthal, in the Taunus Hills, near Frankfort on the

E—Being a table water, may be drunk *ad lib.*

alysis according to Fresenius (January, 1879) in Grains per Gallon.

LIDS.	Chloride of Sodium.........	118·36755	grains
	„ Potassium ...	2·56046	„
	Sulphate of „ ...	1·65424	„
	Bromide of Sodium	0·04487	„
	Iodide of Sodium	0.00070	„
	Phosphate of Sodium......	0·06678	„
	Carbonate of Sodium......	3·57259	„
	„ Lithium ...	0·24773	„
	„ Barium......	0·02695	„
	„ Strontium	0·14133	„
	„ Lime.........	29·28366	„
	„ Magnesia ...	6·75304	„
	„ Iron	2·07725	„
	„ Manganese	0·16576	„
	Silicic Acid...	7·07630	„
		172·03921	„
ASES.	Carbonic Acid combined with certain carbonates to form bicarbonates ...	18·95068	„
	Free Carbonic Acid	157·48152	„
	Total, per gallon......	348·47141	„

olnshire.) WOODHALL. (Altitude 300 ft.)

water of this spring is especially valuable in rheumatism, gout, sciatica, gia, epilepsy, scrofula, obstinate skin diseases (particularly those of a specific er), fibrous tumours, goitre, and in fact all diseases which are benefited by ides and bromides.

E.—As an alterative, one tumblerful twice a day one hour after breakfast, or dinner; and as an aperient, one tumblerful warm one hour before a light ast.

Mutter-Lauge (Concentrated Water) is generally used warm for sponging enlarged joints and tumours, or a compress of lint or oil silk may be applied. ths, to be added to hot water of 95° to 97°, before meals.

Iodine Salt for use at table: one teaspoonful to be taken daily, a portion ach meal.

Analyses in 100,000 parts, and grains per gallon.

	Parts.	Grains per Gall.
Total solids in solution	2361·200	1652·8400
Organic Carbon	·372	·2604
Organic Nitrogen..................................	·532	·3724
Ammonia	·810	·5670
Nitrogen, as Nitrates and Nitrites	·009	·0063
Chlorine	1425·000	997·5000
Total combined Nitrogen	1·208	·8456
Bromine	6·280	4·3960
Iodine	·880	·6160
Arsenicum	·016	·0112
Temporary Hardness	20·000	14·0000
Permanent Hardness	245·000	171·5000
Total Hardness	265·000	185·5000

The water contains unusually large proportions of Iodine and Bromine.

APPENDIX.

NAME OF SPRING.	COUNTRY.	ALTITUDE. FEET.	PROPERTIES.
ADELHEIDSQUELLE	Bavaria	2000	Saline
ÆSCULAP	Hungary	...	Bitter Water
AIX-LA-CHAPELLE	Germany	450	Sulphurous, Thermal
ALET	France	650	Alkaline, Bicarbonated
ALLEVARD	France	1473	Sulphurous, Effervescing
APOLLINARIS	Rhenish Prussia	225	Alkaline, Gaseous
AUTEUIL	France	...	Ferruginous
BAGNÈRES-DE-BIGORRE	France	1900	Sulphurous, Thermal
BAGNÈRES-DE-LUCHON	France	2000	Sulphurous, Thermal
BALARUC	France	...	Saline, Thermal
BARÈGES	France	4000	Sulphurous, Thermal
BELLTHAL	Rhenish Prussia	400	Alkaline, Gaseous
BETHESDA	Wisconsin, U.S.A.	...	Alkaline
BILIN	Bohemia	645	Alkaline, Lithiated
BIRMENSDORF	Switzerland	1300	Bitter Water
BIRRESBORN	Rhenish Prussia	1100	Alkaline
BOCKLET	Bavaria	620	Chalybeate, Gaseous
BONIFACIUS (Salzschlirf)	Hesse-Nassau	825	Saline, Lithiated
BONNES (Eaux-Bonnes)	France	2300	Sulphurous (mild)
BOURBOULE (La)	France	2600	Arseniated, Thermal
BUFFALO LITHIA	Virginia, U.S.A.	500	Alkaline, Lithiated
BUSSANG	France	...	Chalybeate
CARLSBAD	Bohemia	1000	Alkaline, Lithiated
CAUTERETS	France	3000	Sulphurous
CHALLES	Savoy	800	Sulphurous
CHATELDON	France	...	Alkaline, Gaseous
CONDILLAC	France	...	Alkaline, Gaseous
CONTREXÉVILLE	France	3100	Alkaline
COUZAN	France	...	Alkaline, Gaseous
DESAIGNES (Eau de César)	France	...	Alkaline, Gaseous
DRIBURG	Westphalia	633	Ferruginous, Gaseous
EMS	Germany	291	Alkaline, Saline
ENGHIEN	France	521	Sulphurous
EVIAN	Savoy	1000	Gaseous (mild)
FACHINGEN	Nassau	337	Alkaline, Chalybeate
FORGES	France	...	Chalybeate
FRANZENSBAD	Bohemia	1500	Alkaline, Ferruginous
FRIEDRICHSHALL	Germany	920	Bitter Water
GASTEIN	Austria	3200	Indifferent
GEILNAU	Germany	...	Alkaline
GEROLSTEIN	Rhenish Prussia	1200	Alkaline, Gaseous
GIESSHÜBLER	Bohemia	...	Alkaline
GRIESBACH	Germany	1500	Chalybeate
HALLE	Bavaria	1700	Saline, Bromo-iodised

USES.
lterative and tonic. Scrofula and strumous skin diseases, rheumatism and gout, special ailments of females.
rgative.
eumatism, cutaneous eruptions, stiff joints, syphilis, etc.
regnancy (all stages), miscarriage, debility, dyspepsia, nausea, gastro-intestinal complaints, convalescence.
sthma and affections of the throat, chest, and respiratory organs; scrofulous and cutaneous diseases; uterine ailments; osseous diseases; lymphatic weakness of children; rheumatic complaints, etc.
ble water.
yspepsia and debility.
uggish abdominal circulation, nervous uterine derangements, chronic rheumatism, and some forms of cutaneous diseases.
ronchitis (chronic), rheumatism, scrofulous and cutaneous diseases.
small local repute for paralysis.
eumatism (chronic), cutaneous and scrofulous diseases, syphilis, ulcers and wounds, diseased bones, and partial paralysis.
ble water.
ravel and diseases of the kidneys and bladder, albuminuria, dropsy, &c.
ble water. Good for indigestion, heartburn, acidity of the stomach, &c.
ild purgative. Useful in liver complaints, jaundice, hepatic calculus, hæmorrhoids, &c.
ble water.
nic; chiefly useful for female derangements.
r uric acid diathesis; gout, calculus, gravel, diseases of the bladder and kidneys, and biliary concretions; chronic catarrh of the stomach and intestines; rheumatism, hæmorrhoids, scrofula, &c.
itable for children and delicate persons, in cases of asthma, catarrh, phthisis, quinsy and other affections of the respiratory organs.
seases arising from impoverished blood, cutaneous affections, herpetic affections of the pulmonary passages, asthma, laryngitis, chronic bronchitis, eczema, psoriasis, &c.
ic acid diathesis, diseases of the digestive organs, diseases arising from pregnancy and other affections peculiar to women, affections of the kidneys, bladder, and urethra requiring alkaline treatment.
eful for strengthening the digestive organs, and stimulating the action of the bowels and kidneys.
rgative. Useful in diseases of the stomach, liver, kidneys, bladder, spleen, and for diabetes mellitus, gout, chronic uterine catarrh, &c.
taneous affections, glandular enlargements, chronic bronchial catarrh, &c.
ronic catarrh, scrofula, laryngitis, diseases of the liver and abdominal viscera.
ble water. Diseases of the stomach and genito-urinary organs, anemia, chlorosis, &c.
le water.
ic acid diathesis and diseases of the urinary organs, hepatic affections, diabetes, &c.
ble water.
le water.
steria, anomalous menstruation, and other complaints peculiar to women.
nchitis, catarrh allied with gouty diathesis.
ndular obstruction, suppressed menstruation, leucorrhea, cutaneous and scrofulous affections.
rangements of the digestive organs and nervous system.
ections of the bladder and kidneys, derangements of the digestive organs, acidity, heartburn, &c.
orosis, dyspepsia, abdominal weakness, &c.
lominal infarcta and portal obstructions.
gative. Useful in diseases of the liver, bowels, and kidneys; calculus affections of the respiratory organs.
vous affections, paralysis, uterine diseases, seminal weakness, &c.
le water.
le water.
le water.
ic table water.
fulous struma, goitre, &c.

NAME OF SPRING.	COUNTRY.	ALTITUDE. FEET.	PROPERTIES.	
Harrogate	Yorkshire	420	Sulphurous	45
Hathorn	Saratoga, U.S.A.	...	Saline, Gaseous	46
Homburg	Hesse Homburg	600	Saline, Chalybeate	47
Hunyadi-János	Hungary	460	Bitter Water	48
Hunyadi-Lászlò	Hungary	500	Bitter Water	49
Johannisbrunnen	Hesse-Nassau	...	Saline, Gaseous	50
Kissingen	Bavaria	600	Saline, Sulphurous	51
Krankenheil	Bavaria	2467	Saline, Bromo-iodised	52
Kreuznach	Rhenish Prussia	285	Saline, Bromo-iodised	53
Kronenquelle	Silesia	...	Saline, Sodio-lithiated	54
Kronthal	Germany	500	Saline (mild)	55
Leamington Spa	Leamington	...	Saline	56
Lippspring	Westphalia	378	Alkaline, Gaseous	57
Luhatschowitz	Austria	1700	Saline, Bromo-iodised	58
Malvern	England	...	Indifferent (Saline)	59
Malvern Seltzer	England	...	Indifferent (Saline)	60
Marcols	France	...	Ferruginous	61
Marienbad	Bohemia	1900	Alkaline, Chalybeate, Gaseous	62
Mergenthein	Wurtemburg	591	Saline	63
Miers	France	...	Sulphurous	64
Missisquoi	Vermont, U.S.A.	...	Sulphurous	65
Mont-Dore	France	3300	Alkaline, Muriated (Thermal)	66
Morny-Chateauneuf	France	1250	Alkaline, Ferruginous	67
Neuenahr	Rhenish Prussia	225	Alkaline, Gaseous	68
Neyrac	France	...	Alkaline	69
Ofen (Rakoczy)	Hungary	461	Bitter Water	70
Orezza	Corsica	1730	Ferruginous	71
Passy	France	...	Ferruginous	72
Pitreathly	Scotland	...	Saline, Sulphuretted	73
Plombières	France	1310	Saline, mild (Thermal)	74
Pougues	France	780	Alkaline	75
Püllna	Bohemia	1225	Bitter Water	76
Pyrmont	Waldeck	400	Ferruginous	77
Recoaro	Lombardy	1465	Ferruginous	78
Renaison	France	...	Alkaline, Acidulated	79
Roisdorf	Rhenish Prussia	1000	Alkaline, Muriated	80
Roman Spa	Germany	...	Alkaline, Acidulated, Gaseous	81
Rosbach	Germany	...	Saline	82
Royal Hungarian	Hungary	...	Bitter Water	83
Royat	France	1400	Saline, Arseniated, Lithiated (Thermal)	84

USES.
utaneous affections, lead and mercurial poisoning, secondary syphilis, deterioration of the blood arising from gouty diathesis, rheumatism, chorea, chlorosis, anemia, indigestion, etc.
unctional derangements of the digestive organs, dyspepsia, gout, gravel, rheumatism, diabetes, constipation.
onic and laxative. Useful for torpidity of the digestive organs and bowels plethora, dyspepsia, chlorosis, hysteria, hypochondria, diseases consequent on typhus and fevers, liver and spleen engorgements, etc.
urgative.
urgative. Used for gouty diathesis, hæmorrhoids, hepatic affections, female ailments during pregnancy, etc.
able water. Excellent tonic. For indigestion, feeble appetite, rheumatic affections, sedentary habits.
tonic dyspepsia, abnormal mucous secretions, debility, hepatic derangements, hæmorrhoids, and helminthiasis.
crofulous struma, goitre, &c.
crofula and glandular swellings, syphilis, cutaneous affections, rheumatism, paralysis, tuberculosis, leucorrhea, &c.
outy and uric acid diathesis, nephritic and arthritic affections.
able water. Stimulates the mucous membrane and intestinal canal.
yspepsia and indigestion, female complaints, hæmorrhoids, sciatica, gout, rheumatism, palsy and lead poisoning, scrofulous, lymphatic, and glandular enlargements, cutaneous affections, chorea, jaundice, &c.
iseases of the respiratory organs.
atarrh of the stomach and other catarrhal affections, abdominal stasis, gouty exudations, hyperæmic enlargement of the liver.
romotes urinary secretion, beneficial for affections of the bladder and kidneys, fistula, cutaneous diseases.
ble water.
ble water.
rgative. Derangement of the digestive organs, plethora, gout, gravel, hæmorrhoids, female complaints.
thiasis, biliary obstructions, hæmorrhoids.
rofulous diseases.
rofula, cutaneous affections, impurity of the blood, kidney diseases, cancer.
ffections of the mucous membrane, rheumatism.
ble water. Arthritic diathesis, rheumatism, chloro-anemic affections, dyspepsia, &c.
out, rheumatism, bronchial catarrh, acidity, &c.
eritive, tonic, solvent, and detersive; skin diseases, scrofulous swellings, chlorosis, leucorrhea, gastralgia (some forms).
rgative.
ble water. Tonic. For feeble appetite, debility, female complaints, chlorosis, etc.
powerful tonic. Scrofula and skin diseases, abdominal tumours, plethora.
rgative and diuretic.
rvous affections, rheumatism, and some cutaneous diseases.
spepsia, gravel, vesical catarrh, chronic diseases of the digestive organs.
rgative.
spepsia, diarrhœa, chlorosis, debility, etc.
hisis.
le water.
le water.
le water.
le water.
gative.
ility, chlorosis, anemia, gouty and rheumatic diathesis, catarrh of the igestive and respiratory organs, gastro-intestinal dyspepsia, glandulous ngina, laryngitis, bronchitis, humid asthma, diabetes, uric-gravel, catarrhal ffections of the genito-urinary organs cutaneous diseases, &c.

NAME OF SPRING.	COUNTRY.	ALTITUDE. FEET.	PROPERTIES.	
Rubinat	Spain	...	Alkaline,sodio-sulphated	85
Saidschütz	Bohemia	660	Bitter Water	86
Saint-Boès	France	...	Sulphonaphthalic, Arseniated,Iodurctted	87
Saint-Galmier	France	1350	Alkaline, Gaseous	88
Saint-Galmier Noël	France	1350	Alkaline, Aeidulated, Gaseous	89
Saint-Gervais	Savoy	...	Saline, Sulphurous, mild (Thermal)	90
Saint-Moritz	Switzerland	5910	Alkaline, Chalybeate	91
Salins-les-Bains	France	1054	Saline	92
Salvator	Hungary	...	Alkaline, Lithiated	93
Saltzbrunn	Silesia	1215	Alkaline	94
Saratoga	New York, U.S.A.	...	Saline	95
Sauerbrunnen	Germany	...	Alkaline	96
Saxon	Switzerland	1000	Saline, Bromo-iodised	97
Schlangenbad	Nassau	900	Alkaline (Thermal)	98
Schwalbach	Nassau	909	Chalybeate	99
Schwalheim	Germany	...	Alkaline, Chalybeate	100
Seidlitz	Bohemia	675	Bitter Water	101
Selters	Nassau	800	Alkaline, Muriated, Aeidulated	102
Soden	Nassau	450	Alkaline, Gaseous	103
Solms-Gertrudis	Germany	...	Saline, Gaseous	104
Soulzmatt	France	850	Alkaline	105
Spa	Belgium	1030	Chalybeate	106
Sulis	Bath	...	Alkaline	107
Tarasp	Switzerland	4600	Saline	108
Taunus	Germany	390	Alkaline	109
Teplitz	Bohemia	648	Indifferent (Thermal)	110
Uriage	France	1300	Sulphurous	111
Vals	France	2475	Alkaline, Aeidulated	112
Vals-Vivaraises	France	2475	Alkaline, Acidulated	
Vichy	France	733	Alkaline, Acidulated (Thermal)	113
Vichy-Larbaud	France	733	Alkaline, Aeidulated	
Vichy-Lardy	Franec	733	Alkaline, Acidulated	
Victoria-Ofener	Hungary	...	Bitter Water	114
Victoria (Table Water)	Hungary	...	Alkaline	115
Weilbach	Nassau	420	Alkaline, Sulphurous	116
Wiesbaden	Nassau	346	Saline (Thermal)	117
Wildbad	Wurtemburg	1400	Indifferent (Thermal)	118
Wildungen	Waldeck	300	Alkaline	119
Wilhelmsquelle	Nassau	...	Saline, Gaseous	120
Woodhall	Lincolnshire	300	Saline, Bromo-iodised	121

USES.
Purgative.
A powerful purgative.
Diseases of the skin, mucous membrane, bronchia, lungs and chest; chronic venereal diseases, angina, phthisis, catarrhal affections, etc.
Table water.
Excellent table water.
Cutaneous diseases, eczema, dyspepsia, constipation and affections of the alimentary canal.
onic. General debility, atonic torpidity of the bowels.
crofulous diseases, catarrh with scrofulous diathesis, ganglionic congestions, and obstructions of the liver, spleen, and of the womb ; tertiary syphilitic and articular affections, &c.
ric acid diathesis, arthritis, calculus, hæmorrhoids, jaundice, scrofula, derangements of the digestive and respiratory organs.
hronic pulmonary catarrh.
yspepsia, jaundice, enlargements of the abdominal viscera, gall-stone diathesis, glandular obstructions, scrofulous tendency and skin diseases.
xcellent table water.
landular enlargements, tumours, &c.
ervous and cutaneous irritability
ebility, impoverished blood, chlorosis, anemia, &c.
ble water.
powerful purgative.
ble water. Acidity of the digestive organs, affections of the kidneys, bladder, liver and lungs, bronchitis, gout, rheumatism, etc.
male complaints, atonic gout, and some forms of scrofula.
ble water.
ble water.
nic. Debility, stimulates the functions of the bowels and kidneys.
spepsia, indigestion, nausea and general debility of the stomach.
tarrhal affections of the stomach and respiratory organs, gastralgia, enlarged iver and spleen, indigestion, &c.
ble water.
ralysis, chronic rheumatism, anomalous gout with tumefaction and con- raction, derangements of the sexual organs.
n diseases and female complaints arising from debility.
ffections of the kidneys and bladder, gastralgia, diabetes, gout, rheumatism, lbuminuria, nervous affections, debility, chlorosis, anemia, cutaneous ffections, intermittent fevers, &c.
seases of the genito-urinary organs, kidneys and bladder; gout, rheumatism, ravel, calculus, diabetes, dyspepsia, debility, chlorosis, congestions of the ver and spleen, visceral obstructions, hysteria, hæmorrhagia, female nervous mplaints, in convalescence, &c.
gative. During pregnancy and many diseases of women, functional erangements, &c.
le water.
t, rheumatism, herpes, lead and mercurial poisoning, chronic pulmonary seases, thoracic affections, bronchitis, chronic catarrh of the stomach, testines and bladder.
hritic diathesis and diseases, neuralgia, sciatica, paralysis, rheumatic palsy, &c.
neous diseases, neuralgia, rheumatism, scrofula, chlorosis.
ic diathesis, diseases of the bladder and urinary organs.
e water.
matism, gout, sciatica, neuralgia, epilepsy, scrofula, cutaneous affections, itre and fibrous tumours, &c.

(Calvados, France.) TROUVILLE.

Trouville is the most frequented sea-bathing place in all France. The beach at Trouville, being covered with fine and level sand for a length of over 2½ miles, offers to bathers the most complete security, and it is therefore, more particularly recommendable for children. During the months of July, August, and September, the place is crowded with visitors. The neighbouring country, finely wooded and extremely picturesque, is the object of numerous charming drives and excursions. There is a daily steamboat service between Trouville and Havre.

The Salon at Trouville, entirely re-constructed and altered in 1884, is situated on the sea-shore, and surrounded by beautiful villa residences. It is built in two stories, a raised ground floor with first floor over, and contains:—A large dancing room for children's balls; a grand hall for fêtes, concerts and theatres, fitted with a balcony and private boxes as a gallery; a large outer hall or saloon attached to the same; a ladies' saloon, with ante chamber and dressing rooms; a large saloon for racing games; a Café Rotunda; and a Restaurant.

The Saloons and Halls open on to the Grand Terrace facing the sea, and consequently give a splendid view of the sea, the spectator being sheltered from sun, wind, and rain, by the external galleries or verandah. A Kiosk has been built on the Grand Terrace for out-of-door concerts.

The first floor, to which access is given by two grand flights of stairs, at the two extremities of the galleries, is sub-divided into three parts.

The first section comprises a large Reading and Correspondence Room, situated immediately above the Saloon for racing games.

The second, exclusively reserved for the Union Club Rooms, contains a large and a small Saloon for games, a dressing room, with ante chamber and cloak room.

The third, reserved for the Trouville Club Rooms, comprises an exactly similar suite of apartments, together with an annexe, containing a Coffee Room and Buffet.

Between the two Club Rooms there is a large Billiard Room.

All the rooms on the first floor, like those on the ground floor, communicate with each other by means of large galleries, or external terraces, looking out on the sea shore, and giving an extensive view over the sea, to the coast at Havre, and at Caen.

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